TRENDS IN EDUCATION

8

Whither Postgraduates?
Degree by ONC
Bachelors of Education
In-Service Training
Switched-on Education
Rural Studies

OCTOBER 1967

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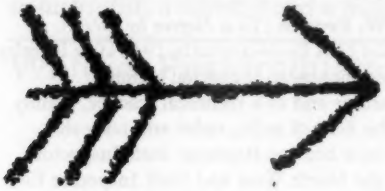

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The proportion of graduates staying on at university for further study is increasing twice as fast as Robbins recommended. What research are they doing? Should more go into industry and school teaching? Trends *reports part of a discussion between a vice-chancellor, an industrialist, a scientist and a historian.*

Whither Postgraduates?

Taking part in the discussion were:
Lord James of Rusholme, Vice-Chancellor of the University of York
Dr F. E. Jones, Managing Director of Mullard Ltd
Professor Hermann Bondi, of King's College, London
Professor A. G. Lehmann, of the University of Reading

Lord James:
We have got to admit that there are various kinds of research. There is the kind of research I did: this was a pure piece of hack research of no importance to the future of the world, but it had very great importance to me as it gave me a very good training. People will not differentiate between different kinds of research especially in the sciences: in one case we are adding to an individual's knowledge and in the other to the corporate store of knowledge. Training the person to be a good and efficient chemist or physicist is really fundamental to the first of these. But it does not necessarily add to the sum of knowledge. My addition to knowledge in my three years at Oxford was absolutely negligible. We lump under this word research far too many different objects and capacities. If you are reading chemistry at Oxford, Part II of the degree is a research project in the fourth year, and this could be regarded as corresponding to a one-year postgraduate course in any subject, on top of what most people do in a three-year degree course.

Professor Lehmann:
Undergraduate courses are provided for people who are coming forward—what has been called 'the pressure principle'. The suction principle, working at the other end, tells us what chaps are wanted with postgraduate qualifications. This certainly relates to what can be afforded, which I think is a useful way of going about it, although I believe at the moment it does not allow one to arrive at any kind of answer to the question: 'what should the numerical proportion of postgraduate students to undergraduates be?'

Dr Jones:
All the scientific graduates with first, upper seconds and lower seconds are being used by the universities themselves. The tendency of the universities is towards more people and more money, and the two or three-year Ph.D. course is very well designed for people who tend to stay on at university and find its life attractive. Therefore the problem

of industry is that it has very little chance of getting top class people with first degrees as such; we have to accept the third class man. He is good, but he needs better class people to lead him and it is these—the potentially £10,000 and more a year men—who are not coming forward in anything like the numbers needed.

Lord James:
If industry takes the third class people and the universities keep the rest, who is going to teach these people in the schools? Our physics departments are rattling about because they have not got enough people in them. If you want the very good people in industry, and the same applies to research, what are we going to do in the schools? This, of course, has been the absolute error of the universities over the last 20 years: the failure to realise that to get good people from the schools good people are needed in the schools to teach them originally.

Dr Bondi:
I am a mathematician, and the number of us teaching is unfortunately relatively small. We find it difficult to persuade young mathematicians to go into teaching. Perhaps if we altered the degree structure (for example by having joint degrees in mathematics and applied psychology) we might be more successful in this.

Dr Jones:
The kinds of graduates staying on at university are two-fold; the people who wish to join the staff—to teach and to undertake research —and (to use a vice-chancellor's term) the hangers-on. The hangers-on are people with outside sponsors for grants and funds. In some universities the hangers-on exceed the permanent staff. In the last few years 70 per cent of Ph.D.s in some disciplines have been staying on at university, eight per cent have gone into industry, two per cent into teaching, eight per cent into Government departments and the remainder have emigrated. Industry and the schools are saying that this eight per cent and this two per cent are just not good enough to preserve the continuity of their functions.

Dr Bondi:
University expansion has now slowed down, so where are all the post-graduate students going to work? Some of the universities are stating that they do not know where to put all these people. This has the result—which I welcome—that many of them must go into the outside world and do useful work in industry and as teachers.

Dr Jones:
The people who work in factories generate the wealth of the country, and the money that is siphoned off by taxation in the cash flow associated with the process of manufacturing and selling goes to provide the universities with their money. The skilled factory worker needs the products of higher education to assist him in increasing his productivity and this cash flow. It designs the machines he uses, plans the new products and processes and helps him to understand the work involved. And it is this support that he has not been getting since 1960. The percentage of first class honours science graduates going into industry then was sixteen, it has since fallen to eight. The percentage of first class engineers has also fallen.

Lord James:
But does industry really use the postgraduate people it gets? It seems to me they find they are not stretched intellectually in the way they are in the universities. This is a major reason why they leave industry and go back to the universities.

Dr Jones:
What we have not got in this country, as they have in America, is the kind of graduate who goes into industry and says to himself 'I will fight for better conditions and higher profits'. If he did this he would help the economic situation of the country. Too many of them give up and go back to university life when they see how tough the struggle is. They should say to themselves: 'What can I do for the company', as well as saying 'what can the company do for me?'. We have got to develop the attitude in Britain that if the boss gets rich then so do I; and the attitude—to quote a cliché—'what's good for General Motors is good for America'.

Professor Lehmann:
I am afraid you're in for rather an up-hill struggle. You have to convince intelligent young men, whose education has not been dedicated to the idea that the interests of a particular company are the end and purpose of living, that in fact they should be so!

Dr Jones:
If a company is efficient and does well its people will be paid more, they then pay more taxes and therefore the Chancellor of the Exchequer has more money to give to the universities. Thus the young men will help by their knowledge in industry to increase the wealth of the country, including increased investment in the universities.

Dr Bondi:
I too believe that a large part of what is good for industry is good for the country as a whole. But surely the root of the problem we are discussing is this: a child is taken at about the age of five and handed over—for the next twenty years, in the case of the people we are discussing—to men like myself who have voluntarily opted out of the industrial side of society. We would surely have failed in some respects if we did not end up implanting in him the wish to emulate us?

Lord James:
In science, a Ph.D. is a good training to allow one to go into teaching, research or industry, but in the arts it will often be more useful not to do research or write a thesis on a fairly narrow topic, but to spend the time thinking more and learning more about the whole field of one's own subject. The word research is wrongly used in the context of the creative arts. Scientific subjects and the social sciences are creative in a sense, but research in the arts may not be creative in the same sense. Writing poetry for instance—that is creative. We would surely stimulate the creative ability not by writing a thesis but by improving the knowledge already obtained by the student.

Professor Lehmann:
Robbins was thinking of a larger minority of people going on, not exclusively to do a Ph.D. course, but to do a postgraduate course

lasting a year, so that the student could increase his knowledge and therefore be able to specialise in one topic or to move into an allied field. Some universities have gone in for this in a big way. This fourth year can help towards freeing people from the 'A' level strait-jacket in which, at the university, they have tended to remain.

Dr Bondi:
We should differentiate between the one-year postgraduate course and the research Ph.D. course. It seems to me, speaking as a scientist, that the country has a great need for students to come out with a first degree after three years, intellectually trained, but not in any sense 'professional.' They will be excellent potential teachers, managers and civil servants. But industry requires professionals who need an extra one or two years at university after a first degree.

Dr Jones:
I think in industry people recognise that the universities do a good job up to graduate level and that the first degree is a valuable asset. But they are worried about what happens after the first degree. Thirty-six per cent of science graduates stay on to do a Ph.D. and most of these get set in their fields of study, many of which are of no interest to industry. For graduates whose futures lie in industry there should be alternate schemes to the Ph.D. as, for example, suggested in the Bosworth Report. The universities and the industry should get together and have a 50-50 interest in deciding what the student will do in his post-graduate training leading, for example, to a degree of Doctor of Technology. Industry has asked the universities to cut down on the present number of post-graduate so-called industrial courses which at the moment total 274, costing the country six million pounds a year, for each is attended on average by less than two people from British industry. In spite of the poor attendance the universities are not very willing to give up these courses because they are a source of revenue. The only way to ensure an industrial interest in post-graduate education is to allow industry to have a say in this part of the student's education as in the Bosworth scheme.

Lord James:
Many universities are asking why should we allow our students to go into industry to provide the management with good men, and also train men for management, when industry does not provide money on any great scale with which to finance us.

Dr Jones:
I don't know where the money comes from to run the universities, if it isn't from industry.

Dr Bondi:
But not directly, and only under compulsion.

Dr Jones:
Agreed, but having paid once, industry cannot in general afford to pay again. If industry becomes more productive as a result of the influx of good men more money will accrue to the universities. In any case, some companies, including my own, give universities considerable capital sums to found new laboratories and create new teaching posts.

Dr Bondi:
The importance of good research is not only its intellectual challenge, but the fact that it brings you into close touch with your fellow men. You learn a lot, and have to communicate it to other people. Also I do not believe you can be a good teacher unless you are well-versed in research. Teaching does not make you a good researcher, but having done research can make you a better teacher because for one thing it has led you to sharpen your wits against other people.

Professor Lehmann:
I consider that private study is in many cases the exact counterpart to research. The person who writes up his investigation is doing research —we should remember that research cannot be called such until it has been published, exposed to criticism, taken up into the shared body of knowledge—but the person who studies the write-up, for teaching or otherwise, is often doing private study. To have done research puts you in a better position to make critical use of the work of others. It is in this way that academic research is linked to academic teaching. These points apply in most fields of study, and are I believe relevant.

Lord James:
I would prefer to see private study replace research in the extra one or two-year course. Really it is 'reflection' that I want to see replacing 'research', for some students and in some areas of study.

Good ONC results can qualify students for entry to degree courses. Analysis of results at six colleges (three now universities) shows that they can do better than GCE entrants.

To a Degree by ONC

H. W. FRENCH

Ever since the National Certificate system was instituted it has been clear that many students within it were capable, given the opportunity, of obtaining university degrees. Numbers of students of degree calibre leave school at 15 or 16 years of age, although, happily, the proportion is steadily diminishing. Some whose school record would not have inclined their teachers to think of them in university terms have found that industrial or commercial employment has provided them with an incentive which they lacked at school, and has enabled them to develop in a manner previously unsuspected. Many such students have done very well under the difficult conditions of part-time study, and have achieved excellent results in the Ordinary National Certificate examinations.

However good their results, few such students have been able, in the past, to get back into the full-time system and try for a degree. A few universities have provided for an 'industrial entry' to their degree courses and have allowed in occasional students from the ONC/HNC ranks. But this has been exceptional.

In 1957, however, the newly-formed National Council for Technological Awards instituted the Diploma in Technology, at honours degree standard, setting entrance requirements in both GCE and ONC terms. The minimal GCE requirement was normally five appropriate passes, including two suitable subjects at advanced level. Students with relevant Ordinary National Certificates or Diplomas were accepted if they had achieved 'a good result', normally interpreted as not less than a 60 per cent mark. The Council of National Academic Awards, which has succeeded the NCTA and, unlike it, is a degree awarding body, has maintained the same entry requirements. So, too have those colleges of advanced technology which have recently become universities. Thus for the first time there now exist many degree courses which accept students who have trodden different paths to reach them, namely the full-time GCE route for most, and the part-time ONC route for some.

The CNAA has permitted the holders of Diplomas in Technology awarded under the aegis of the NCTA to exchange them for CNAA degrees. There is now, therefore, some six years' output of CNAA degree holders, enough to enable an assessment to be made of the relative performance of the two types of entrant in the final examinations.

Comparative Results

Unfortunately, no records exist centrally in a form which permits this

kind of comparison to be made. A sample, involving over 2,500 students, was therefore taken from six colleges—three of which are now universities—which have a lengthy experience of NCTA/CNAA courses. Each college submitted its degree results, showing separately, for GCE and ONC entrants, the classes of degrees obtained. The figures for the colleges have been totalled and are shown in Table 1.

Table 1

Class of Degree	GCE Entrants		ONC* Entrants	
	Numbers	%	Numbers	%
First	167	9.9	107	11.8
Upper Second	484	28.7	289	31.7
Lower Second	533	31.6	314	34.6
Third or Pass	385	22.8	164	18.0
Fail	119	7.0	36	3.9
Total	1,688	100.0	910	100.0

* Includes a small number with Ordinary National Diplomas

The generally superior performance of the ONC entrants is evident from these figures, and it is clear that the provision for good ONC students to enter degree courses in technological universities and colleges of technology has enabled these institutions to tap a rich source of degree-worthy material for whom such opportunity was previously denied.

The figures quoted in Table 1 relate solely to those students taking final examinations, and do not take account of failure on the way. Three colleges however provided these figures also. Table 2 summarises their results, taking 'drop-outs' into account.

Table 2

Result	GCE Entrants		ONC* Entrants	
	Numbers	%	Numbers	%
Pass	681	61.7	396	73.8
Fail	54	4.9	17	3.2
Drop-out	369	33.4	123	23.0
Total	1,104	100.0	536	100.0

* Includes a small number with Ordinary National Diplomas

Thus not only did the ONC entrants produce better results than their GCE counterparts, but a higher proportion of them completed the course.

Reasons for Success

It is interesting to consider why it is that the ONC students achieve greater success than their colleagues who enter with A levels. Several reasons have been advanced. The first is better motivation. A student with an ONC in, say, engineering, will normally have been a trainee within the engineering industry for at least two years. He will have a much clearer idea than his straight-from-school fellow-student of what engineering is about, and of what it actually means to be an engineer.

He will have noted that the best and most interesting technical posts are held by chartered engineers, and that most of these are graduates. He is thus likely to be clearer about his objectives than his A level counterpart, and will consequently have a greater incentive. Having succeeded well under the arduous conditions of a part-time course, he will no doubt have acquired the habit of disciplined study.

Also, ONC students in degree courses are, commonly, sponsored to some extent by the firms for which they have worked. They are thus selected, not solely upon academic attainment, but partly because of an already successful adjustment to an industrial environment. They have in consequence the knowledge that they are already picked men in whom the firm is ready to make an investment. They regard the sandwich course—and the vast majority of the students in the sample were sandwich course students—as a natural enlargement of their opportunities. It is perhaps worth noticing here that the sandwich course, successful though it has been, is not without its perils for those who enter it direct from the sixth form. Not only have these students to negotiate the transition from school to college or university but, less than six months later, they are plunged into the new and often, for them, difficult environment of industry. This can, in the first industrial period at any rate, sometimes result in a situation which may compete with, rather than reinforce, the effort given to study. The ONC students are, of course, already conditioned to industry and thus, for them, such a problem does not normally arise. Also, their pre-conditioning within industry may well help them to see the relevance of the college work more readily than the ex-sixth-formers can do.

Some Reservations

From this assessment alone one might perhaps be tempted to rush to the somewhat disturbing conclusion that better results in technological degree courses might be obtained if students left school after taking 'O' levels and spent two years in industry (whilst following an ONC course) rather than stay on in the sixth form. Whilst this could be true for a minority, to deduce it as a general conclusion from the results in Tables 1 and 2 would be to ignore certain reservations which need to be made about these figures.

The first is that one is comparing high-flyers from the ONC courses with a below-average section of successful A level examinees. If one takes the crude yardstick of the proportion of those entrants with A levels who have three or more passes, one finds that, for science and technology students in universities, the figure is about 84 per cent. Taking one large college of the six investigated, of the 1,110 A level entrants to its courses 72 per cent had three or more passes. (This college is now a university, and there is reason to believe that the standard of A level entrant it attracts may well be higher than that in most other colleges offering degree courses.) It is felt, too, that the average grading of the A level passes accepted in colleges may be somewhat below that in universities, although there are no readily available figures to substantiate this. It is perhaps significant that one of the six colleges produced figures which showed that the performance of its A level men was slightly better than that of its ONC entrants. This particular college (which produced the smallest sample in terms of graduate output) was unusual in that most of its graduates were from science courses, whereas the other colleges were heavily biased

towards engineering. This college claims that it attracts to its science courses—which have a high reputation—a quality of A level entrant higher than is normal in technical college degree courses generally.

The fact that the six-college sample is heavily biased towards engineering should also be noted. This arose because many of the first NCTA courses to get off the ground were in engineering, and consequently, of the six-year graduate output, engineers naturally predominate. It is well known that, with science and engineering courses both demanding much the same kind of A level subject passes, engineering degree courses tend to attract students whose academic attainment is, on average, lower than that of the entrants to science degree courses.

A question which arises, of course, is whether an ONC at about 60% is the right standard to demand of a student who has to undertake the same studies (apart, perhaps, from some adjustments in the first year) as those of an entrant with a minimum of two A level passes. This small investigation seems to indicate that it would not be reasonable to demand a higher performance of the ONC man. Some earlier work,[1] on a much smaller sample, by Hilary Dickinson gave a similar indication. This showed that the wastage-plus-failure rates were 17% for students with three or more A levels, 26.9% for those with ONC, 35.1% for those with two A levels and 42.7% for students with other qualifications; that is, the ONC students compared favourably with those who entered with two A levels, but did not succeed as well as those with three or more passes. Miss Dickinson was careful to point out the dangers of generalising from a small sample taken from one college, and no doubt much more analysis than has so far been published needs to be done before any precise equivalence may be determined. Meanwhile, the evidence seems to point to the conclusion that the present ONC entry standard can at any rate be easily defended.

Wastage and Failure

There is, however, one matter of grave concern which arises from the figures of Table 2, as well as those of Miss Dickinson quoted above. This is the wastage-plus-failure rate. The figures show that more than a quarter of the ONC entrants in the sample failed to obtain the degree for which they registered, and over a third of the A level entrants. The country cannot afford to operate a highly selective system for degree courses and then lose a third of those chosen. It is of course appreciated that not all of the 'drop-outs' should properly be regarded as wastage, since some of them are transferred to Higher National Diploma, Higher National Certificate or other courses; others will have dropped out for personal and other reasons not connected with the difficulty of the course. What is necessary is that such 'safety-nets' should be firmly and deliberately built into our system of tertiary education. This means that there should exist a parallel range of Honours Degree, Ordinary Degree and Higher National Diploma courses, with a well established mechanism for moving students between them, especially during, and at the end of, the first year of study. This is part of the thinking implicit in the White Paper *A Plan for Polytechnics and Other Colleges* (Cmnd. 3006). This document envisages that within the Poly-

[1] 'Students in a C.A.T.; Qualifications and Success', by Hilary Dickinson *Universities Quarterly*, Vol. 18, September 1964.

technic system there will be degree courses (honours and ordinary) on a full-time, sandwich and part-time basis, together with corresponding (and other) sub-degree courses. Thus the free movement of selected students, so as to enable them to succeed in a course appropriate to their abilities, rather than to fail in, or drop out of, one too difficult for them, will be facilitated. Whilst such movement will clearly be easiest to achieve in establishments e.g. the polytechnics, which can offer the full range of courses, inter-college moves in the interests of the students should also be encouraged and developed. Indeed, such arrangements might well constitute an important example of the college-university links referred to in paragraph 26 of the White Paper.

In this fashion, not only will more ONC students be enabled to tread 'the second way' successfully, but 'the first way' will become less bestrewn with the bodies of those who have succumbed to the hazards of an insufficiently flexible system.

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This article is the second in a series devoted to the work of Colleges of Education.

Bachelors of Education

J. F. PORTER

One of the intriguing things about many of the discussions concerning the Bachelor of Education degree is the assumption that it is an utterly new and novel idea to have a degree for teachers. However, Richard Mulcaster made such a proposal four hundred years ago and a number of prominent men advocated it in the nineteenth century and in the period between the first and second world wars. In 1944 the McNair Committee faced the institutional implications of raising the level of teacher education when they wrote that 'the Universities should accept new responsibilities for the education and training of teachers and, to that end, should establish University Schools of Education'.

The new element in the situation was the unequivocal support of the Committee on Higher Education reporting in October, 1963. As the Editor of the *Universities Quarterly* wrote shortly after the report appeared, 'the Robbins Report has scattered the thin waters of the pool of ability idea and established upon the basis of a formidable statistical survey, the fact of great reserves of talent'.[1]

The Robbins Committee also proposed that the size and pattern of higher education should be directly related to qualified demand. The Committee found major reserves of talent in the training colleges, which have since been renamed colleges of education. They recommended that the colleges should co-operate with the Universities in developing 'a degree gained in a distinctive way and characteristically based on the study of education'. It is from this recommendation that the present Bachelor of Education proposals have arisen.

Present Position

On the 3rd November, 1966, Mr Goronwy Roberts in a Parliamentary reply stated 'I am glad to say that all the Universities concerned, with the single exception of Cambridge, are proceeding with arrangements for a Bachelor of Education Degree'.

After a rather tentative beginning the universities and colleges have worked together in a remarkable way to fashion the syllabuses for the new degree. In 1969 a fairly substantial number of young teachers will be entering the schools with first degrees earned in the colleges and awarded by the responsible university. Although there is a lack of solid information, certain patterns are emerging. In all cases the degree course is for four years and the certificate is awarded at the end of three years. Thus the students entering their fourth year of the degree will be already qualified as teachers. Syllabuses have been planned by joint committees composed of representatives from the colleges and the universities. The Committee on Higher Education had made it

[1] Editorial, *Universities Quarterly*, December 1963.

clear that they did not wish to see present university syllabuses arbitrarily imposed on the training colleges and on the whole the various universities have heeded the warning. Subjects such as physical education and home economics have presented difficulties in some institutes but not in others. The universities have varied in the extent to which they have laid down specific conditions concerning the degree. In practically all cases the degree schemes include education as a principal subject for four years with at least one other subject studied for the first two or three years.

Again, the majority of universities appear to have agreed to a classified degree. A minority have approved only a pass degree. The vital question of admission to the degree course has normally led to the requirement of matriculation qualifications and satisfactory performance in college in the first year. Thus, most students are admitted to the degree course at the end of their first year in college. In a small number of cases the decision has been left to the end of the second year. All universities appear to be operating an exceptional entry scheme, whereby under-qualified students who demonstrate real potential are considered.

Probably a majority of colleges are working a three plus one scheme where the new degree syllabuses operate rather like an enriched certificate course for the first three years and the fourth year is solely concerned with degree study. In a substantial number of colleges, however, the one plus three pattern has emerged, whereby the students follow the first year of the certificate with all the other students and then enter on a degree course which lasts for three years. Some of the work will be within the certificate course (which is still examined at the end of the third year) but they are also engaged in study which is specifically degree type work from the end of the first year. What is clear now is that colleges and universities have taken to the task of setting up the degree with great energy and seriousness of purpose. The universities' initial uncertainty with reference to such matters as particular subject fields and the maintenance of academic standards has largely been dispelled. It has now been replaced by a desire to establish a sound degree course and even sometimes by lively interest in a new and experimental approach.

Major Issues

It is clear, however, that there are a number of difficult problems to be faced. These relate to the admission of students, the methods of examination and the effects of the degree upon the developing role of the colleges in the total system of higher education.

There are those who consider the general insistence upon 'normal matriculation requirements' to be inappropriate for admission to a degree which differs significantly in content and style from the conventional university degree. It is certainly true that many students who have not done significantly well in school flourish in the stimulating situation provided by many colleges. Some of these students have had a disturbed secondary education, others are maturing late, still others are excited by the challenge of a new subject, or the interest engendered by professional preparation. When the conventionally qualified students and the small band of exceptional entrants have proved themselves it may well be appropriate to broaden the base of entry to the degree.

It is also important to link the certificate to the degree in a formal way so that the certificate is recognised as a qualification which can lead to the award of a degree after the student has left college. Thousands of able students have already completed a three year certificate course and are now working in the schools. Many thousands more will not choose at this stage to work for a degree. There must be a route for these teachers leading to a graduate qualification. It would seem sensible to base this piece of simple justice on their certificate qualifications and to make various arrangements to provide for completion of the degree course.

The colleges have long experimented with ways of examining and assessing students. Because of the range and variety of work done for the certificate, it has been necessary to devise methods of appraisal which do not distort the aims and purposes of the course. It is important that degree students should continue to be examined in the most flexible and enlightened way. There is plenty of evidence to show that the universities are taking a keen and constructive interest in new approaches to examining which go a good way beyond the rather limited range of a three hour written paper.

The influence of the degree upon individual colleges will vary according to the size of the colleges and the pattern of courses offered. In this early stage, however, many colleges have only a small proportion of Bachelor of Education students and it may be that these are receiving an undue amount of attention. This is natural when the colleges have had to concentrate also upon designing syllabuses and discussing methods of examination with the university. In the long term, however, students may come to see the colleges as playing a more instrumental role than that which they have normally been viewed as having. Thus, students may go to college to get a 'degree' and thus perhaps come to question the more broadly professional and socializing functions which the colleges have normally had. Again there is a possibility that the necessary selection of students to do the degree, and perhaps the selection of certain teachers to teach them, may have a divisive effect within a college. It is clear that colleges are well aware of the dangers and are anxious to find ways of averting them.

In the college system as a whole there is a further possibility of separateness. Thus, some large colleges with a traditionally highly qualified entry may have a substantial number of undergraduates whereas a smaller college, with far fewer well qualified entrants, may find it difficult to mount degree courses at all. In such a situation it is virtually certain that a large college offering favourable and wide ranging Bachelor of Education opportunities will increasingly attract students wishing to do degree type work. This could lead to a dual system with the Bachelor of Education students concentrated in a fairly small number of colleges.

Although the economics of such a development might be attractive the educational implications are not so favourable. It would mean that the degree would only operate on a selective basis to further the impressive raising of the standards of teacher education which were heralded by the introduction of the three year course. An interesting survey carried out by William Taylor (now Professor of Education at Bristol) on the staff of the colleges of education underlines the fact that well qualified staff are fairly evenly distributed around the colleges.

It is particularly revealing to note that there is no significant difference between the qualifications of staff in colleges attracting the best qualified students and those with the least well qualified ones. Given that a large number of colleges have a fair potential for growth, it seems important to encourage degree work in as many colleges as possible.

An insistence upon particular kinds of formal qualification, and a restriction of subjects offered for the degree, will inevitably reduce the capacity of many colleges to establish degree type work with a significant number of students.

It is most important that degree arrangements should be flexible. It is perfectly possible to build a review body into the organisation for the degree in the various institutes and schools. The colleges have been used to an enviable amount of freedom to experiment and initiate. This freedom is essential to the self-respect and healthy growth of all institutions concerned with education. It is unlikely that the universities will fail to recognise this principle which they have so jealously guarded in the past.

In considering the possible developments from the degree the reflections of Martin Trow are of interest. He was reported in the *Universities Quarterly* of March 1964 as making the following comments concerning the colleges of education in the whole system of higher education in this country. 'Will the Colleges of Education be ready to expand and transform themselves into general purpose undergraduate colleges with special attention to the applied social sciences, and would it be worth anticipating and even encouraging the demand rather than merely meeting it reluctantly'. Trow produces an impressive argument, demonstrating the 'pull' of occupational growth in teaching, social work, administration and civil service and the 'push' of large numbers of highly qualified young people pressing to enter higher education. Thus, he sees the colleges as playing the central role in the further development of the higher educational system.

However one sees the eventual role of the colleges, one returns to the central issues stated by the Robbins Report when they argue that the double problem of the colleges is that of providing 'a general higher education for increasing numbers of young people and that of providing teachers well prepared to meet the changing needs of the schools.' When considering the Bachelor of Education some see these functions as opposed. However, no professional degree in any faculty would be thought adequate if it did not also fulfil a broadly educative function. If the Robbins forecast on numbers is fulfilled by mid-1970 (and many think it is excessively conservative) 10,000 men and women will leave the colleges as Bachelors of Education. It is to be hoped that they will have had their own education extended by a rigorous and informed study of certain forms of knowledge and that they will have acquired the skills and insights and preliminary experience to enable them to fulfil their tasks as teachers. It may well be that the more varied and growing numbers of young men and women seeking higher education want this education to refer to real issues, to practical judgments in a social situation. Thus, knowledge is acquired by the student and he communicates it; understanding, when gained, issues in decision making. This is the essential drive and excitement of a higher education having the avowedly dual purpose of being personally educative and professionally relevant.

Further training for serving teachers is a key element in helping schools to keep abreast of new developments. This article describes provision in the West Riding.

In-Service Training for Teachers

J. M. HOGAN and J. B. WILLCOCK

In the period immediately following the war there was considerable eagerness to expand and improve the programme of training offered to serving teachers in the West Riding. It seemed likely that those who were returning to the schools after a long spell in the forces would need, and probably welcome, opportunities to re-adjust themselves to their civilian roles. It soon became obvious however that in-service training was not simply a matter for a frantic post-war endeavour but something that henceforward would present itself as a continuing and possibly increasing need.

Certain areas of the West Riding are as attractive as any in the country; indeed there are Yorkshire folk who consider them unparalleled! There are parts, however, particularly in the industrial south of the county, which simply do not attract a high proportion of well qualified teachers. The people who were prepared to serve in such areas were likely to stand even more in need of stimulus and inspiration than many of their colleagues elsewhere.

There are some tasks which can be discharged quite admirably in sessional courses—short or long. For the transmission of information, or the consideration of techniques, they are effective and convenient. Often they bring together whole staffs of infant, junior and/or secondary schools and provide an opportunity for each to learn of the others' aims and methods. Frequently, however, sessional courses attract disparate gatherings of teachers at varying stages of experience and understanding and thus invite precisely the same educational limitations as class teaching or the public lecture. For this reason the Chief Education Officer began to turn his thoughts towards the development of residential courses in which it might be possible to exploit the advantages of continuous association and thus give greater attention to the 'why' rather than the 'how' of teaching problems. Only in premises suitable in design and furnished appropriately to the purpose did it seem likely that one could detach teachers from their day to day responsibilities and provide an atmosphere conducive to relaxed and informal discussion.

There had been a residential Bingley Vacation Course since the early years of the century where teachers could spend some ten days in the company of gifted and dedicated leaders of their profession. This however catered for only a hundred or so once a year out of a total of considerably more than ten thousand. Extension of this provision at first involved the improvisation of boarding arrangements in day school premises. There are many good people who are prepared to accept dormitory conditions provided by placing camp beds in uncurtained and unscreened classrooms. One can readily forgive those

who find such arrangements totally objectionable. Furthermore, it became more difficult to defend makeshift conditions for teachers' courses after 1949 when Grantley Hall commenced to operate as a short term college for adult education. Here excellent catering, skilfully chosen furniture, and a gracious country house in a superb natural setting, simply emphasised the poverty of the arrangements for teachers' courses.

In 1952 Woolley Hall, an impressive seventeenth century country house, opened as the County's college for the in-service training of teachers. Since that time it has been progressively improved and extended by a series of minor building and maintenance works. At present it offers comfortable boarding accommodation for about fifty teachers and the necessary tutorial, administrative and domestic staff. In addition there are a handsome library, music and conference rooms, a purpose-built hall for movement and drama, an art and craft block, and a language laboratory. A rural studies centre has been established in the grounds with a classroom/laboratory, livestock and horticultural areas, greenhouses and an extensive demonstration apiary. Extensions now approved will provide in addition specially equipped spaces for the training of school caretakers as well as display areas, general purpose rooms and a workshop.

The demand for courses at Woolley Hall is such that its use is committed for at least a year ahead. In the educational year 1965-6, over 4,000 teachers registered for courses there, nearly 2,500 of them for residential courses and the remainder for sessional courses in the specialist teaching areas in the grounds. There has, however, been no diminution in the number of sessional courses held throughout the county. In fact many of these are closely related to what is done at Woolley Hall, serving either as a preliminary to or an enlargement of the more concentrated residential courses. Approximately 130 local courses were organised in the year 1965-6 and these varied from a single evening session to a regular weekly meeting extending over 36 weeks. The total number of teachers attending is not known but it must run into several thousands.

Teachers' Centres

In recent years a new feature has revealed itself. Impending secondary school reorganisation or the launching of such experiments as the Nuffield science and mathematics projects have caused teachers to feel a strong need for regular conference and consultation. At the same time the occasional closure of small schools or replacement of inadequate libraries have provided opportunities for establishing modest centres reserved exclusively for use by teachers. In three educational divisions so far, such centres have been established, and there is a lively prospect that more will be needed.

Possibly the most important development still pending is the opening of Bramley Grange, another country house now being modified and extended, as a residential centre for the in-service training of the staff of further education establishments, the youth and youth employment services and the professional, technical and administrative staff of related services. It may be taken as some indication of the pressure upon Grantley and Woolley Hall, as well as the confidence that has been built up in the benefits of residential in-service training, that

there has been warm support for the establishment of a third college of this kind.

One consequence of the enormous amount of training which has been undertaken during the past twenty years is the extent to which it has now become possible to cater for widely differing needs, and to call upon experienced teachers to assist their colleagues in active investigation. Successful in-service training can now be seen to be based on similar principles to those which underlie any successful education. The emphasis must be on helping the teacher to build his own understanding of his work, and above all, on ensuring that he has confidence in himself and his beliefs and confidence that he can develop his practice as a better reflection of these beliefs. There is little or no value, and there may well be danger, in a course which simply conveys to the teacher the impression that his present practice is 'wrong' and which sends him back to his school with a feeling of inadequacy. This is not to say that the course should cushion the teacher from a critical analysis of his approach. Indeed, there is often great value in 'shock tactics' on a course of short duration—but it is important that where this happens there must be the time, the help, and the opportunity, for the teacher to think constructively and positively so that he leaves the course refreshed and optimistic rather than gloomily aware of his shortcomings.

It is important to recognise that the main purpose of in-service training is to help the teachers to continue the development of their understanding of their work and to recognise the strength in their current practice and the most profitable growing points from this. Such an understanding can arise only as a development from their practice at a given time. It is with the growth rather than the transplantation of ideas that learning is concerned.

Most teachers, after a period of service, need help of two kinds:

(i) To focus on and clarify the nature of the learning activity and the basic concerns of education
(ii) To develop their own understanding of the materials and subject-matter with which they are working.

In general it is important that these two needs should be treated in this order of priority, since it is an understanding of the former which will enable the teachers to select from the second that which is likely to be of most value as a learning experience for their children.

If the emphasis in in-service training is to be on helping the teachers to develop their own understanding of their work and its development, each teacher concerned must be allowed to take an active part in whatever programmes or courses are provided. It is through their own contributions, mainly through discussion or through practical activities, or through talking to other teachers about their work, that they have this opportunity, rather than through the contributions of a more formal nature which are introduced to provoke discussion.

For a person who has been teaching for a number of years, the critical questioning of his practice and assumptions is not an easy or comfortable task. To reveal doubts about one's practice, to recognise new needs, and to expose problems and difficulties in a discussion can be an uncomfortable activity. If this kind of thinking is to take place honestly on a course, it is of prime importance that the teachers should

feel as confident and secure as possible, and particularly that they should draw assurance from their relationship with those responsible for the course. This is made much more possible if the course staff know some of the students in their schools and already have a good working relationship with them. But it is rare that this is true of all members of the course. Hence it is essential that the early stages of a course should be planned deliberately so as to establish such confidence.

One of the main features in determining the value of a course is the extent to which it can be related to the needs and experiences of the teachers attending it. The planning of any course must be based on an assessment of these needs in relation to the teachers for whom it is to be provided. Sometimes it is necessary to select the membership of a course in terms of their common level of experience. What would be profitable for one group might have little or even negative value for a group of a different type.

A retrospective assessment of the value of courses is of great importance in the development of a programme of in-service training. A course cannot be assessed merely from evidence of its own momentum, however. Any assessment must take into account what happens in the schools subsequently. And this does not mean the immediate transplantation of the content of a course to the schools. It is the extent to which a course stimulates, helps and encourages a teacher to develop his own thinking and understanding which determines its success, rather than any enlargement of his repertoire of teaching activities. The real criterion is whether a teacher is in some small way changed as a person and consequently as a teacher.

In a number of recent publications on curriculum development, its close relationship with in-service training is pointed out. This, of course, is vital but there is a very real sense in which the two terms are synonymous. The really important developments in educational practice are those which teachers make in the gradual growth of their work, and courses for teachers which place the emphasis on the sharing of experience play a vital part in this process. Curriculum development is not a simple matter of the production of materials followed by courses designed to train others in their use. Any teacher who is doing interesting work gains from the opportunity to clarify his thought to the point when he can communicate it to others. The others gain not so much in terms of the information or ideas which he gives them, but rather in the reinforcement of those parts of their own practice and experience which overlap with his and in the encouragement which they derive from this to take the next step in their own development.

Advisers

If one acknowledges the subtlety of the whole business of in-service training it follows that an effective programme of training depends upon a number of factors, many of which are even more important than the existence of ideal accommodation. First and foremost, of course, is the availability of a team of inspectors and/or advisers capable of assessing the needs of teachers and planning how they may best be met. In this respect the West Riding is extremely fortunate.

If one ignores such specialist officers as those concerned with advice

on careers, welfare, youth service and the school museum service, all of whom contribute in valuable ways to courses for teachers, there are still no less than 14 County Council inspectors and 34 specialist advisers. In the former group there are people with considerable experience in the teaching of science, mathematics, English and the organisation of libraries, as well as infant and junior school method, provision for the educationally sub-normal, and so on. Among the advisers there are specialists in music, art, modern languages, religious education, rural studies, bee-keeping, handicraft, housecraft, physical education and an educational psychologist. It is impossible to over-estimate the contribution made by this powerful team to all aspects of in-service training.

Secondly the influence of the Warden of any residential establishment used for this purpose is of the utmost significance. In the West Riding a special debt is owed to Miss Diana Jordan, O.B.E, the first Warden of Woolley Hall. Not only did she establish there the highest standards of physical provision but she also subjected everything that was done there to sensitive and critical scrutiny and thus contributed to the evolution of an enlightened code of practice. It is fortunate that she has been succeeded by a person of equal dedication who has accepted the onerous obligations that have already become part of the Woolley Hall tradition.

Thirdly, of course, it is necessary to have a committee prepared to assist financially in mounting a not inexpensive addition to the service as well as governors and managers who are well disposed towards releasing teachers as may be necessary for training. These things are not always easy. About the value of such sacrifices however there can be little doubt. It is surely significant that in certain areas of the West Riding where twenty years ago there was thought to exist a special need for the training of the teachers there is now to be found educational work of a quality and distinction rarely to be found even in the most favoured areas of the country. There is also, I believe, among the teachers of the West Riding a special kind of morale. Though they serve in a very large and widely scattered county thousands of them know each other and the authority's inspectors and advisers as friends who meet frequently and know each other's minds. As we move through the changes that are likely increasingly to affect our professional lives we shall all stand in need of more not less opportunities to ensure trustful and confident relationships.

This article describes the first day school for maladjusted children purpose-built in this country.

Day School for the Maladjusted

S. K. BAILEY

'Since the restoration of harmony and understanding between parents and children must be one of the main purposes of treatment (of maladjusted children) it is most satisfactory to treat a child, if possible, while he remains in the natural environment of his own home. Treatment of him and his parents can then go hand in hand; there is no chance of a conflict being set up in his mind between the different standards of two environments'.[1]

It was with these and other considerations in mind, such as the possibility of achieving better parental co-operation, and the simplicity of transfer from an ordinary to a special school *and back again*, that the Coventry Education Authority was encouraged to consider the proposition of building a special school for maladjusted children in its area for daytime use. Wainbody Wood School was the result. It opened in 1965 as the first, purpose-built day school of this kind in Britain.

In 1962 a unit had been set up to accommodate a maximum of twelve emotionally disturbed senior boys who might form the nucleus of the new day school. Fir Tree Lodge which the unit occupied was a house and it was decorated and furnished as a house; the rooms were in no sense classrooms—there were no blackboards, no sign of pin boarding, no desks, no familiar classroom chairs. The schoolmaster's traditional stock in trade had gone, and in its place there were work rooms pleasantly decorated and furnished with easy chairs. What the headmaster was in effect trying to do was to create an atmosphere in which these children could relax and when they were ready could work. As the tensions relaxed so they began to work, for this was not intended to be a rest home, but a situation in which these children could make up the days they had lost both in living and learning.

In planning the new school the Coventry LEA had very little to go on; but we knew the kind of children we were planning for. We knew that the ability range would be wide, that it was likely to extend from children who were unable to read to children who were preparing for the GCE, and we knew that we should have to cater at times for a single child who required teaching in a specialised subject for a particular examination. We knew too that there would be varying types and varying degrees of maladjustment, and it seemed that flexibility should be the keynote in our planning. A basic requirement was that the school should be given an informal character which had been successful in the small unit at Fir Tree Lodge.

The school was finally built in CLASP construction. The hall is 'L' shaped and can be divided by doors to give three areas the size of

[1] *Report of the Committee on Maladjusted Children* (Underwood Report).

classrooms or any combination of the three. One area is used for school assembly and by the younger children for music and movement; two areas combine as a gymnasium area and there are fixed climbing-frames, ropes and trapeze. A portable stage can be brought into use for drama or imaginative play by the children.

There are five classrooms, each with its own screened garden, individually planned and planted. The classrooms are rather like small houses, each with features of its own, and this has been carried through in the choice of furniture, curtains, carpeting and wallpaper. Each classroom has a lounge area which is carpeted and contains easy chairs and bench seats. This is where the children gather to sit or lie on the floor for group lessons or discussions, TV and radio lessons. The central area of each room is provided with tables and individual lockers and it is here that written school work is carried on. Here also the children arrange and set the tables for lunch, which is a family affair with the teacher lunching with the children. Each classroom has a workshop area containing a sink unit, work bench, and a small cooker. An individual toilet and clothes drying cupboard are standard for each room. For two of the classrooms the lounge area is enclosed to form a glass-fronted quiet room. This may be used by the teacher for sessions with individual children or by the children themselves when they wish to be on their own for a time. In the reception classroom the store is large and has a stable-type door so that it can be used as a 'wendy house' or shop.

One senior classroom has a corner set aside for needlework, and this has a counter front used by the children to run the school tuck-shop. A special feature of the school is four glass-roofed conservatories which provide circulation space and which are also used for keeping pets, growing plants, painting and hobbies.

In addition to the classrooms there is a fully equipped craft room, provided with benches and apparatus for wood and metalwork, for pottery and clay modelling.

The playground has a playwall, behind which there is a paddock and stable constructed by the children for the school donkey. The playing field covers three acres and there is a small natural pond.

The headmaster's house and a residential unit are on the same site. Apart from the headmaster's personal accommodation the house contains three double bedrooms with single beds to accommodate six children from the school, who live with the headmaster and his family during the week and return to their homes at the week-ends and for the holidays. The visiting children have a cosy lounge with television, a large playroom for table tennis and other games activities.

The idea is to provide short term residence for those children who are facing a period of intense family stress and crisis; care for the child whose parents are themselves emotionally disturbed—but who are capable of responding to treatment, and for the depressed and withdrawn children who find it difficult to make progress in larger residential groupings such as children's homes. Similarly, the rejected and emotionally starved child is able to have his or her needs met in fuller measure in such a small group. The house also provides for the possibility of a period of observation of a child's emotional symptoms in a residential setting perhaps prior to his being recommended for placement at a residential school.

The school has 50 places and is divided into five class groups for the range from 5 to 16 years. The ratio of boys and girls at present is roughly 7:3. Intellectual ability is taken into account when selecting children and it is generally expected that children should be at least of average intelligence or potentially of average intelligence, if they are to be considered for a place in the school. It is recognised, of course, that some disturbed children give depressed results on first testing. Within the school at the moment the lowest I.Q. is 85. Most of the children fall into the average range and the highest I.Q. is 170.

It is staff philosophy and staff attitudes, not physical objects and their arrangement, that determine and create the life that goes on within the physical setting of a school. A day school for maladjusted children requires a variety of personalities and aptitudes among its staff. It is an important contributory factor in the adjustment of these children that they should find adults whom they can like and that they should share with these people activities they enjoy.

The children at the school are recommended for admission by the consultant children's psychiatrist to the Director of Education. Prior to this the children pass on referal through the traditional diagnostic and selection procedures.

The headmaster then has to consider the group situation within the school. A class should never be an accidental conglomeration of children with all kinds of symptoms; it must be carefully planned and balanced for the impact each child will have on the others. A class composed only of aggressive children would not work, for the tensions that this would create would become excessive as belligerent children reinforce one another's aggression. A group composed only of withdrawn children is also undesirable because it fails to create sufficient tension to draw such children out of their passive state.

When it has been agreed that a child should be offered a place, the parents and child are invited to the school and interviewed. A place when it is offered is purely voluntary.

In cases where the child cannot easily be brought to the school, the head first visits him (or her) at the child guidance centre, or failing this at home. The aim is to develop a positive relationship which will, it is hoped, assist the child to get to school. With acute cases of school refusal it has been found necessary to allow the mother to bring the child to school and to stay in the classroom near him, often for as much as a term, until separation is achieved.

When the school opened, 19 difficult cases of school refusals were referred—some of these children had not attended a school for a considerable period. After the school had been open for two terms, 17 of these children were actively attending the school and in most cases a considerable change has now been achieved in their adjustment.

As soon after entry to the school as possible, complete educational attainment testing in basic subjects is carried out. A child who might be severely retarded in, say, reading is also given diagnostic testing and his need for individual remedial teaching considered. All teaching in basic subjects is provided on an individual basis.

The school programme for the disturbed child follows the general lines of progressive primary and secondary schools. The skills of reading, language, mathematics and social relationships are important

concerns. Purely from a teaching point of view, the class sizes are ideal, for with groups of not more than ten children, individual work in basic subjects can really be done. Each class has a timetable and although it is not always possible to keep to this it gives a certain structure to the school day which is valuable. Although the atmosphere is permissive, complete lack of structure would cause the children to feel much less secure. Certainly some of the children are so full of anxiety and tension that sometimes they are quite incapable of doing any work for a time. They are always encouraged to do a little, but no pressure is applied to compel them. During quiet work periods such children might choose to paint or sew at one end of the room. Or if they wish to sit and do nothing, this is accepted. Some children will attempt to stop group work and this problem has to be solved by the teacher and the group. Sometimes such children will use a quiet room or corner elsewhere in the school; for some this is the time when they seek out the headmaster for a talking session.

The aim at Wainbody Wood has been to produce a happy and relaxed atmosphere within the school community. One of the advantages of small numbers is that fewer rules are required and more permissive behaviour can be allowed. The children come to understand that physical aggression is not tolerated. They are not allowed to destroy furnishings or ruin equipment or break up another child's possessions. On the other hand aggressive language is accepted and they are free to write and paint about their feelings. Limits also depend on the individual child and the stage of treatment. When some children first attend the school more complete permissiveness is usually allowed, but as progress is made and positive relationships established, more control is exercised.

Frequently the children test out the limits and some lose control of themselves and have to be helped, depending on the situation. Sometimes, when a girl or boy has become dangerously aggressive to others, the teacher must restrain the child and possibly remove the child from the situation. The child will not be left alone, and as he or she calms down and regains control the teacher will attempt to discuss what has happened and the events leading up to the situation. It is most important that, however aggressive a child may become, the teacher should remain in command of the situation and be able to provide firmness as well as love. These incidents are generally opportunities to give a child positive relief from his difficulties.

A knowledge of the home circumstances of the child is vital to understanding him and the treatment programme includes adequate social work with the parents. Maintaining a close liaison with a child's home and as far as possible giving adult support and guidance is the function of the psychiatric social worker to whom the child at the school is assigned.

The senior psychiatric social worker visits the school each week and the senior educational psychologist and the consultant children's psychiatrist visit frequently. The teaching staff make monthly reports of observations on each child, one copy of which is forwarded to the child guidance centre; in the same way the social workers complete monthly summaries of case work for the school.

Since children come to Wainbody Wood from every part of Coventry, travelling arrangements are made to suit the needs of the individual.

Children may travel by ordinary transport on free travel permits, by special buses, or by taxi. Within this framework there is scope for variation for it has been found that while a child may for some time travel to school quite happily on a bus on his own, some sudden pressure may make this mode of transport unsuitable and alternative arrangements have to be made.

When a child is recommended for a place at Wainbody Wood it is the psychiatric social worker that has worked with the family who introduces the idea to the parents and discusses how the school may help the child and how the parents too may be helped. Preparation by social workers is vital. Although it may take up time, the crucial thing is to secure the child's attendance at the school with the full co-operation of his parents.

At the time of writing the school has only just completed its second year, so it is too early to be certain how long children will need to stay. Many of the children first admitted were quite serious cases requiring long treatment and they will probably be at the school until they are able to begin work. Generally speaking it is expected that the average length of stay will be two years. Depending on their age, the children will then return to primary or secondary schools or be found suitable jobs and helped to take their place in society.

Environmental studies have been attempted by many primary and secondary schools. Though many pupils live in urban communities a lively interest in animals and the countryside is widespread and the study of a rural environment provides much sheer enjoyment for pupils both in town and country schools.

Rural Studies in Schools*

There is a growing conviction among teachers that the 'relevance' of their school work is important to older children, and this is becoming of increasing importance in view of the raising of the age of statutory attendance to 16 in 1970. The relevance of rural studies can be communicated to school pupils easily enough if these studies involve practical work, observation and enquiry. Moreover, work in rural studies will be concerned with the basic human needs of subsistence —the growing of crops and the raising of stock—with conservation of natural resources, with the control of environment through science and technology and with the human adjustments that this may involve.

The content of rural studies will be provided by the evidence of man's age-long dependence on the land for a livelihood. This will involve the study of the communities of plants and animals and man's influence on them, together with the geological basis of scenery. The seasons, the weather and what they mean to the cycles and rhythm of life are also involved, and finally, the activities, impediments and skills of those who work in agriculture, horticulture, forestry and fisheries.

Team-work is called for if teachers are to develop rural studies in a broad and liberal way. Many schools have shown this to be possible. In some schools rural studies provide the driving force for many activities, influencing the teaching of almost every subject. In others, the team-work is organised only for certain carefully planned sessions of school-time, which may, or may not, be spent by sections of the pupils and staff away from the school itself in residence at centres. The number of such centres provided by authorities has shown a marked increase in recent years and an encouraging development is the initiative shown by many schools in purchasing and equipping their own centres. The range of rural studies attempted in such a pattern of work can extend from the purely ecological studies of wild life in its 'natural' habitats, or of man and his crops and livestock on a farm, to the wider studies of villages and regions, much as has been advocated for decades by the followers of Le Play, the French sociologist.

However valuable work of this nature may be, there can be no doubt that it develops best and makes the greatest impact when it is supported by the continuing work of a well-established rural studies unit in the

* The article is by a small group of HM Inspectors interested in rural studies.

school. Such a unit will depend on the expertise and enthusiasm of teachers, but it must also be equipped with specialist rooms where field, farm and regional studies can be initiated and followed up. Ideally there should be sufficient flexibility in facilities and equipment to provide for the varying interests of pupils and staff who may wish, at different times, to make further studies in the various aspects of gardening, under glass or in the open; in the keeping of livestock, from bees to poultry and small mammals; in the growth of forest trees; in rural crafts and engineering; and in the preservation and preparation of farm and garden products (rural domestic economy).

Rural studies activities in a school can clearly develop strong links with several subjects; but above all they should be supported by close co-operation with science and craft. To ensure such co-operation, planning in advance and co-ordinated schemes of work will almost certainly be necessary. Pupils who are fascinated by the activities and phenomena of rural life may gain a great impetus to learn when they appreciate the relevance to those interests of what they are taught in science lessons. Biology will naturally be based on rural studies in many schools and craft work of various kinds closely allied to them.

The organisation of rural studies courses will vary from school to school according to circumstances. In many primary schools the interest of pupils in people and living things is fostered by carefully planned field, farm and village studies, carried out partly in the countryside and partly in the schools' classrooms, their gardens, which are best kept small, and their collections of small livestock. Such studies, graded to suit the wider age-range and the pupils' own enquiries, could form part of a course designed to develop some understanding of the scientific principles which lie at the root of the activities and phenomena which interest them. At a slightly older age pupils, still stimulated by their interest in natural phenomena, should be enabled to build up a series of concepts giving pattern and structure to their knowledge of the universe around them and particularly of the countryside. The teachers needed must be steeped in country lore and with some expertise about country activities. A small greenhouse, a small garden, and facilities for keeping some livestock will certainly be necessary.

In secondary schools, rural studies figure too often only as an alternative craft for boys, and frequently only for those at the lower end of the ability range. No one would minimise the value of work of this nature for those who are slowest to learn. The acquisition of skills in tending plants and animals, a satisfying experience for any pupil, can spark off an interest among the less intelligent which may overcome 'blocks' of various origins in the learning process. But rural studies have a wider appeal, as has been shown by many schools where they have been given a central role in the curriculum.

For some pupils, however, rural studies may be confined to the earlier years. Often a small unit with one or two members of staff will work closely with the team of science teachers, contributing on an equal footing in the teaching, although possibly specialising in the biological field, and controlling the unit with its garden, greenhouse, and livestock so that all can have opportunities of pursuing enquiries in which living plants and animals are involved. Given sufficient time—three periods for the physical sciences and three or four for biological

studies, including rural studies—an adequate common course could be provided for three years, covering many basic principles of science and introducing children to field studies and many aspects of gardening and farming.

The facilities for work at this level should be well placed for close collaboration with the science staff. They should include ground-floor rooms with services, within easy reach of garden, greenhouse and livestock unit. The staff should search widely for help and inspiration to stimulate their pupils' enquiries. In some areas the staffs of parks departments of local authorities might be approached, in others the staffs of farm institutes and of the National Agricultural Advisory Service. Officials of the NFU and friendly farmers might prove helpful. In most areas there are bee-keeping advisers who can assist.

Many schools will go much further than this—the course and facilities suggested above are only minimal. The team and unit would then be larger, catering for the needs of older pupils, from the fourth year onwards, following biased courses in which aspects of work in several subjects would draw inspiration from the countryside and from the unit at school. Although the pupils in such courses might be expected to acquire many practical skills and techniques (and in doing so would have a stake in running the unit), this should not be a dominating feature of their courses; routine can be time-consuming and lacking in educational value, and should find little place in a broadly based course. Essential routine chores have to be carried out and those teachers using laboratories and craft rooms may have the help of auxiliaries; in the same way much of the day-to-day and hour-to-hour servicing of the rural studies unit should be in the hands of gardeners and stockmen.

Some authorities have found it desirable to give the heads of rural studies departments full responsibility for the school campus. This has the advantage of giving them enhanced standing in the school community, putting the expert staff at their disposal, and making clear to all concerned that the school estate is available for use by the pupils in pursuing their scientific enquiries, in learning to appreciate land and its use, and in acquiring certain skills and an enhanced sense of responsibility. Some voluntary service to the school estate may well be expected of them, and some features—garden, greenhouse, livestock—may be the joint responsibility of members of clubs with officers drawn from the pupils. Many schools have learnt the value of co-operative enterprises of this sort. The personal involvement of the pupils may be considerable when they are boarders living on or near the school premises; but many schools contrive to enlist the interest of day pupils just as effectively.

Courses drawing repeatedly on features of the rural environment need not be unduly vocational. The education resulting should be liberal, since much of the inspiration derives from country things. Pupils following such broadly-based courses with a rural bias have passed on successfully to further education courses very varied in character. It would seem obvious that a career in science follows naturally from the enquiring approach fostered in many rural courses and from the contact they provide with applied science on a broad front. Similarly, the future teacher or nurse, or entrant to the vast field of occupations concerned with food and its preparation, would have found such a

course appropriate. The same might be said of those who seek employment in forms of commerce or industry linked with the land.

The growing tendency for pupils of varying ability to remain at school well beyond the statutory age of attendance calls for a reconsideration of the courses they will follow. Courses with a rural bias have much to offer at this stage. A maturity of outlook is required both in participation in the day-to-day running of the unit and in the long term planning which is essential for success. Those teachers successful in securing the co-operation of pupils in the enterprise find that this has a great appeal. It can be linked with an outlook, arising naturally from the enquiring attitude fostered in earlier work, which does not accept claims and statements at their face value, and may spur the pupils on to obtain the knowledge which gives better understanding and to enquiries into factors affecting the efficiency of the unit. These may involve links with further education establishments. A school may come to work closely with a farm institute and its extra-mural staff. The pupils might visit the institute farm to gain 'work experience' or to pursue studies, started at school, in a more adult atmosphere. Careful joint planning is needed if this is to be effective and the school staff must follow in detail the work of the pupil when away from the school, tactfully supervising and guiding but doing nothing to violate the pupil's growing sense of independence.

Examinations by external bodies have influenced rural studies courses at schools; sometimes their influence has been benign, setting good standards and giving guidance as to content, but often the influence has had a narrowing effect on the scope of the work. Several examinations boards invite candidates to sit papers in such subjects as rural science, agricultural science, or rural biology, at the ordinary level of the GCE examinations. These tend to put a premium on ability in written expression and on short-term memorisation of facts. It is unfortunate that the one board which insisted on an oral examination, which brought the examiners—often university staff—into welcome personal contact with staff and pupils, no longer functions. The CSE examination, coupled with changing attitudes to biology courses, as shown by the American Biological Sciences Curriculum Studies material now reaching this country and the Nuffield material now becoming available, has led to a reappraisal of examination methods. Attempts have been made to assess scientific thinking and practical aptitudes as well as knowledge of facts. These developments have coloured the attitude of teacher panels controlling CSE examinations. Many questions appearing in science papers indicate a welcome development of links with the field work and applied science which figure in rural studies courses. Papers specifically in rural studies are also offered to schools and these often give a broad field of choice to meet the needs of pupils who have made a special study of an activity such as gardening, farming, or forestry. The new examinations reveal some uncertainty still about what is to be offered but no doubt more coherent patterns will emerge as the examining bodies gain experience.

Work at a higher level in rural studies is not assessed by public examinations yet engineering, engineering science and domestic arts are assessed at the advanced level of the GCE examinations. Work now being attempted at many schools could justifiably claim to reach this level. It is true that some schools with strongly developed rural studies

courses find, as one might expect, that older pupils turn very naturally and successfully to 'A' level courses in chemistry, biology and geography and often gain university entrance on the standards they have achieved. Nevertheless the time appears to be ripe for the introduction of 'A' level courses in agriculture, agricultural science, and in the wider field of rural studies; this seems to be particularly opportune in view of the current reconsideration of the 'A' level science courses and examinations. A possible alternative, now under discussion would be the co-operation of schools and colleges of further education, or agriculture in offering courses for the Ordinary National Diploma in science. The regulations governing such courses have been issued only very recently. They provide for the examination of a fairly wide range of sciences coupled with an applied science. There is a good case for including in the studies of most sixth form pupils, even if only in minority time, some social and scientific aspects of rural studies, such as the competing demands for the use of the land, or the significance to man of genetic and ecological studies.

Such developments might place a strain on the supply of teachers. Fortunately several colleges of education now offer main courses in rural studies, in addition to those five which are specially equipped and staffed to provide what have been called 'wing' courses in rural studies. Some colleges have close links with farm institutes where students may gain practical experience. The vital link between science and rural studies departments at colleges is not always as strong as it might be. Students are coming forward in greater numbers to take main courses, but some courses are not well-supported. The absence of advanced level courses in schools has meant that sixth-form pupils considering entry to colleges of education may be out of touch with rural studies and ignorant of their appeal. Some authorities provide short courses for sixth-formers at residential centres in the country to meet this need. This and the general development of rural studies in schools should lead to an increasing interest in college of education courses. It is encouraging that a B.Ed. course in environmental studies is being worked out at the University of Newcastle-upon-Tyne by the joint efforts of a college of education staff and the faculty of agriculture.

The shortage of teachers underlines the importance of in-service training for those already in the schools. Apart from the residential courses run by the Department of Education and Science and other bodies, there are many conferences and refresher courses, usually of a regional nature. In the development of these, and in a number of other directions, the invaluable work of the LEA organisers should be noted. Not only do they advise and encourage the teachers, but they can interpret the needs of the subject to the education committee, which might not be well-informed about current developments in some areas. An invaluable contribution to training is made by teaching centres where organisers provide courses in many aspects of rural studies.

A broad interpretation of rural studies in school should mean that pupils will have experienced work which calls for disciplined study to acquire a structured body of knowledge about the countryside, entering into many of the familiar subjects of the curriculum. It will be knowledge that is particularly meaningful to them because much is acquired by their own observation and records. They will have made

some acquaintance with the mode of thinking characteristic of scientists; the ability to pin-point problems, to throw up hypotheses, to gather evidence and to assess its validity and significance, for it is relatively easy, in rural studies, to investigate practical problems by scientifically sound methods, often at a simple level with the minimum of specialised equipment. Their activities will have called for creative thinking, initiative, perseverance, responsibility and foresight, all qualities which contribute to maturity. They will have had opportunities to acquire skills and the insight needed to analyse techniques so as to reveal the harmony between craft and scientific principles. Perhaps most important of all they will have had the satisfaction of working with living material in human pursuits in which man sees and works with natural principles and laws in an outdoor setting instead of working against Nature. In so doing they should appreciate the importance of conserving natural resources if man is to survive in a period of population explosion and if the countryside is to remain as a heritage all can enjoy. It has been well said: 'People will not safeguard that which they do not understand. They will not protect and treat kindly that which they do not appreciate.'

The Pädagogisches Zentrum, Berlin, with financial help from the Ford Foundation, organised an international conference in Berlin in May to discuss 'the possibilities and limitations of educational testing'.

The Scope of Testing

H. G. MACINTOSH

International conferences, if they achieve nothing else, are usually successful in underlining certain problems that are basic to all the participating countries, although their solutions might lie in different directions. The main threads that ran through the Berlin 'educational testing' conference were four in number, the first three being very closely related. First, the use of tests; secondly, the problem of introducing statistical and measurement techniques to teachers; thirdly, the training of teachers, and finally the development of new ideas in testing and new types of test. Although technical and theoretical papers were presented these were comparatively few in number. This seemed to reflect a view that consideration of the ideas and the human problems involved were of more direct relevance for most of the participants than the technical aspects of testing, however important these might be. The one exception was machine scoring which underlay much of the discussion about objective tests as well as being dealt with directly in a paper by Lindquist (United States).

It will be noted that the word 'test' and not 'examination' has been used so far in this account. An artificial distinction has developed in the United Kingdom between the two words and reflects our failure to consider testing as a unified whole. Instead we try and break it down into groups which at times are regarded as watertight, as, for example, achievement examinations and aptitude tests. This distinction was obviously meaningless to most of those at Berlin and the word 'test' will therefore be used wherever possible here.

The use of tests in attempts to achieve a great variety of purposes not only formed the subject matter of many of the papers but was brought out again and again in the questions after the papers and in the informal discussions. No distinction was normally made between the teacher-made test and the test prepared by some outside agency, in the sense that it was regarded as essential that both kinds of test should be completely integrated into the overall educational programme if they were to be used to the maximum advantage. The importance of linking any test or testing programme to clearly defined objectives was underlined by many speakers but two valuable warnings were issued by Ebel (United States) and Dunn (Australia). Ebel stressed the importance of making the objectives realistic and of relating them to the content of the course being tested, rather than emphasising woolly ultimates which could rarely if ever be achieved in practice. Dunn made the point that, in education, what benefits some is almost certain to be ineffective for, or even to retard, others. A country, in its educational development as in its economic development, must aim at

making the best possible use of its resources. In this way it can utilise its potential to the maximum. Countries vary both in their educational philosophies and their resources; any testing programme that takes no heed of the first and over-estimates the second will retard rather than advance its purposes.

The attitude of educationists in the United Kingdom to the increased use of testing has been and still is coloured by the 11 + and the existing secondary school external examining system. Here far too great an emphasis has been and is placed upon the result of the test as the single basis upon which decisions vital to children's futures have been taken. To many who feel that such decisions should be based upon a portfolio of evidence of which tests are but one part, there appears to be only one logical alternative, the abolition of external testing. These two extremes do not provide an atmosphere which encourages the use of testing in more extensive and constructive ways, as, for example, in evaluating units of instruction in a new mathematics programme, or teaching materials in a new science teaching project, or for diagnosing weaknesses in pupils' achievement in a foreign language, to give but three examples which were mentioned at the conference. Ruth Wong (Malaya) emphasised the three-way transmission of information between the test, the pupil and the teacher instead of the test imposing upon the teacher and the pupil. When problems are approached in this way the antagonisms disappear and the constructive use of tests is made possible.

The second and third threads at the conference, both concerned with teacher training, were, of course, closely linked with the first in that solutions to the problems involved in them enable the teacher to construct better tests which can be used to improve and not restrict teaching as well as enable him to interpret the results of these tests more meaningfully, in full awareness of their limitations as well as their strengths. The variety of suggestions put forward at the conference as to the best methods of teaching statistics and the basic principles of measurement and test construction to teachers illustrated all too clearly that the successful teacher is the one who adapts theory to reality and approaches each problem as a challenge which cannot be overcome by preconceived ideas. A number of common points emerged, however, in particular the necessity for relating the content of any such course to the practical situation in which the teacher actually worked. The course, in short, must not only be realistic but real. It was equally important to realise that many of the statistical procedures and techniques were not required in full by teachers and that short cuts and rules of thumb involving less mathematics were more likely to be absorbed than the full rigours of the statistical formula, provided they were used for the tasks for which they were both appropriate and effective. The point was also made that an increasing number of children were being taught statistics at school and were being asked to apply them in other fields, as, for example, geography, economics and sociology. A new generation of teachers might thus emerge to whom statistical theories and their applications were familiar and who would thus be more receptive to considering statistics in relation to educational measurement.

Teacher Training

The problem of teacher training as a whole was inevitably a much more

complex one. There was already too much in most teacher training courses and any additions ought clearly to be seen in the light of existing priorities in the countries concerned. It was emphasised again and again that teacher training should not be thought of as ceasing when a teacher took up his or her first appointment. In service training, summer schools, refresher courses and the occasional opportunity for paid leave of absence to take more extended courses were all essential, although once again these opportunities must inevitably be related to the available resources of each country in terms of personnel and money.

In the field of new tests and ideas on testing, Torrance and Kogan, both of the United States, described tests and experiments designed to identify traits of originality and creativity in children at various levels from the primary to the tertiary. At the same time it was hoped that they would find out to what extent if any these traits were related to achievement in education. Messick (United States) in a brilliant paper expounded the possibility of identifying styles of approach to tasks in the cognitive domain, or, put in another way, the possibility of ascertaining to what extent a strategy of task-solving in the cognitive area was developed by individuals in common with or independently of other individuals. It seems reasonably clear that people tend to see tasks, and thus develop strategies for solving them, in contrasting styles, for example, global/analytical/levelling/sharpening. What is not clear is to what extent a particular individual tackles different tasks by using different strategies, for example, tackling one problem by a global approach and another analytically. If the individual does this can the thought processes that lead him to do it be identified and augmented by instruction? The possibility of being able to improve an individual's flexibility in dealing with tasks has very real implications for education.

At the conclusion of an international conference one inevitably asks the question: 'what lessons can one draw from it which are relevant to the situation in one's own country?' It is all too easy to dismiss most of what has been said as interesting but inappropriate or enthusiastically to advocate proposals which are completely unsuited to conditions outside the country of their origin. Despite this last danger, however, I think that there are some lessons that can be drawn from Berlin. In more precise terms these are four in number. First, there is an obligation on the part of those engaged in testing in the United Kingdom to undertake a great deal more research. Such research will, of course, cost money and this can come from a variety of sources, including the state, the great foundations and industry as well as the bodies who are themselves engaged in testing. While not under-estimating the value of help from the state and the foundations, and at the same time casting an envious glance at the financial involvement of industry in education in the United States, I feel that the money, at least in the early stages, should come from the testing organisations themselves. If they have research which they consider it vital to undertake and they cannot pay for it themselves, then they must raise their fees to make it possible. Public examinations in the United Kingdom have for too long been conducted at cut-price rates. Those who sit the examinations rightly demand more than a cut-price service but it has to be paid for.

Secondly, there must be a radical re-thinking of the uses that we

make of tests in the United Kingdom. This will not be achieved unless we increasingly move away from the view that we can make reliable decisions on the basis of one piece of evidence. Until such time as tests are regarded by all selectors and users as merely part of the evidence, and a part which has, moreover, considerable limitations, then attitudes to tests will continue to remain hard and a more constructive approach to their value within the field of education be difficult.

Third, it follows that where greater evidence is provided about individuals there is the need for more skilled counselling and guidance in its use. Counselling at all levels of the educational system in the United Kingdom is insufficiently systematic and is carried out in the main by untrained people. Evidence is of little value unless it is used in the best possible way. The development of more courses in educational guidance and counselling at university degree level and for teachers by local education authorities seems to be long overdue.

Fourth, and this follows from the previous points, there is the need to place more emphasis within the teacher training programme upon the problems of measurement, upon the uses and abuses of tests and upon the interpretation of the information which tests provide. It has always seemed to me implicit in the increased teacher participation in the CSE that much greater consideration will have to be given to the points mentioned in the last sentence. If this is not done, then as testing techniques grow more complex the teacher will play either a smaller or less informed part.

Earlier this year the Secretary of State announced his decision to establish a National Council for Educational Technology. This article reviews some developments to date in the electronic invasion of the classroom—and some of the fears to which it has given rise.

Switched-on Education

The electronics revolution in education which many now foresee (and some fear) is considered likely to be comparable in scale and significance to the impact of printing five hundred years ago. Printing, it will be recalled, had a rather unpromising beginning—limited to such things as the reproduction of prayers, paper money and playing cards—but the result of its application to books was, in an age much slower technologically than ours, dramatic. Gutenberg's printing office at Mainz was big enough in 1450 to enable the Vulgate Bible to be set in type. Half a century later there were nearly 40,000 recorded editions of books. It has to be admitted, however, that after that initial explosion of learning the quality of printing began to deteriorate—a result, it is said, of the alarm of the authorities of church and state that the new medium of communication was creating too much freedom of thought. Some at least of the opposition to electronic education today—or at least to too rapid a development of it—comes from the opposite fear: that by over standardising the content of education it may inhibit the essential freedoms.

Sir Eric Ashby, for example, who is one of those who see the present technological advance in the same series as the invention of printing (the two before that being the professionalisation of teaching and the adoption of the written word) has warned that whoever controls the computerised programming of curricula 'may come to have a terrifyingly powerful influence on the minds of the young'. How near are we to this happening and what are the essential safeguards?

The equivalent perhaps of Gutenberg's Bible was the development of radio broadcasting in the twenties and of television in the forties. The BBC began a series of sound broadcasts to schools as early as 1927 and in 1957 a schools television series began on BBC and ITV; and at the transmission end great skill and understanding have been developed. But five years after schools TV started only 4,000 schools out of 30,000 were registered as viewers—partly perhaps because (as a visiting Fulbright professor noted) the freedom of teachers 'to adjust the syllabus for optimum utilisation of the programme is limited by the inflexibility of the examining syllabus'. If electronic education is a tyranny in the making it might have to come to terms with that other and older tyrant before freedom significantly diminished (which could be an argument for keeping curriculum programming and examining in separate hands). In the meantime there has been a sharp increase in the number of sets provided in schools and in the number of schools registered as viewers; and virtually all now have radio sets.

Because programmes for schools, both radio and television, are directed at classes in the charge of teachers, it is taken for granted that the teachers play a part in the preparation and follow-up. But since the White Paper of 1962 (following the Pilkington report) there have been different terms of reference for the television authorities, leading to a massive development of the wide range of educational programmes on sound and vision for those who have left schools. There have been an increasing number of experiments with composite courses in which television or radio is combined with correspondence courses and supporting material designed to test the feasibility of teaching those isolated adult students who are unable to attend further education institutions or classes. The inquiries have provided *prima facie* evidence that television-based courses can recruit and hold many students who would not otherwise be reached, and a more ambitious scheme has been under consideration by the Government for offering degree courses in which television programmes, associated with correspondence material and tutorials, would play a prominent part.

CCTV

The use of closed circuit television for educational purposes is almost as old as schools television, being first installed at Cambridge in 1958 and demonstrated in London the following year; and its subsequent growth has been rapid. This is essentially a system of private television in which the camera is linked to the receiver either directly by cable or indirectly by microwave transmission. In its simplest form it can all take place in one room—recording, transmission and reception—and as such is widely used in university departments, colleges of further education, and the science departments of schools. Used in this way, it is a demonstrating device differing from other methods of illustration only by its improved access to the object under discussion. A camera outside the room has still greater access: for example to noisy or dangerous machinery, or to animals whose activities might be disturbing in the lecture room, or to human situations such as social casework or children in a classroom.

Multiplying the number of reception points introduced a different factor, extending not merely the range of the viewer but also the range of the lecturer. It has been a common experience in schools and colleges for small units connecting one classroom with another to develop quickly into systems based on a television studio in the school; and it is only a further extension of the same idea for one studio to serve several schools and thus for a further move to be made to a district system, thence perhaps to a regional system deploying a number of studios in different educational institutions—schools, colleges, university. It becomes local television addressed to a specific audience. Local educational radio may soon develop in a similar way. There are several important respects in which this kind of development differs from national broadcast television. One is the less elaborate scale on which it can operate. Another is that it can be intimately related to the immediate needs of a known audience. A third is that it is free from many of the restrictions of time and time-tabling which surround broadcasting operations carried out on a national scale. But somewhere along the line from the all-in-one-room exercise to regional educational TV, the pattern of production can become very like broadcast TV, with the teacher all too easily slipping

into second place to producers and technicians. The argument is strong for the teacher becoming part-producer and part-technician himself if he wishes to keep control of a rapidly developing pedagogical situation. How far in fact has the situation developed?

Among the school installations four at least have interesting features. The Hayes and Harlington experiment in 1961 linked a grammar school and a modern school for O level physics. The Warblington (Hampshire) experiment of 1962-5 started in one secondary modern school, then spread to another and to a grammar school. It was reported to be difficult however to find more than three forms to take the same programmes (for which the economic minimum was about 200 pupils) and to build timetables round the transmissions. Kidbrooke comprehensive school in London was wired in 1963 and one of a run of eight classrooms has become a permanent studio; here too it is rare for more than three classrooms to be taught at once. A promising feature was the landline link to a college of education, but its success is thought to have been limited. Finally, the Fulwood (Lancashire) scheme in 1965 also ran up against the difficulty of finding enough forms (in a school of 800) to justify the outlay on additional teaching and technical staff. The need to find an economic level at which to operate seems bound to involve several schools. Comprehensive reorganisation is likely to make this easier, but school administrators may have to start thinking of bigger units than even the largest comprehensive—unless they are prepared to be merged in district schemes, with some loss perhaps of influence on programme content and of flexibility in timetabling.

Although these early experiments have not revealed any simple formula for saving staff or saving time they have had important results. They have aroused great interest among teachers who have found that the production of good programmes demands a co-operative effort by teams of teachers and producers who are prepared to re-think methods of presenting material and even of the material itself. Those who have taken part have been exhilarated by the medium which has forced them to present their ideas more clearly in a manner capable of being understood by a much wider audience. The gain has been in the quality of the teaching.

College Experiment

There has been some quantitative gain too. One of the problems of a massive increase in the numbers of students is that colleges of education have had to arrange for many more students, as part of their professional training, to observe children and teachers at work in schools. Closed circuit television cameras in the classroom can allow large numbers of students to watch the same lesson and to discuss what they have seen with their tutors. Moreover in some senses the quality of the observation undertaken in this way is superior to the conventional method whereby a few unaccompanied students attend as observers at the back of the classroom. In 1964 the Ministry invited eleven colleges to collaborate in some experimental work and an interim report by Coppen and Kean was published in *Trends in Education* No. 3. The lecturers need some training in order to take full advantage of the facilities, and the two supervising institutes (Leeds and London) have been asked by the Department to provide courses for lecturers from colleges which propose to make installations. For the first course,

which started in September 1966, applications were received from over twenty colleges.

The main emphasis in the colleges is on the observation of children being taught but the equipment has been used also for the teaching of large groups of students and many teachers are in this way gaining experience of being taught by television. The colleges do not however spend much time on training young students in the techniques of television teaching: this is a sophisticated art and best used by experienced teachers who can sense the probable reaction to the programme in the classroom. In-service courses for teachers who wish to find out about television production are being arranged by the local education authorities which have introduced closed-circuit television systems and by the Institutes of Education at Leeds, Exeter and London. The EFVA offers a range of short courses in audio-visual aids, including CCTV, at the national centre. A few colleges of art or dramatic art (Glasgow, Bromley, the RCA) also offer courses in television production, and the work of the Lloyd committee on the training of film producers may well have a bearing on future developments. Many colleges of further education use CCTV as an optical aid and some for extension lecturing—a consequence of the great variety of courses, which limits economic operation. At St. Helen's however CCTV helped to overcome staffing difficulties, and at Brighton the department of computing, cybernetics and management is experimenting with it as part of a new system of communications.

Several other colleges of education have been experimenting on their own. At Goldsmiths a small portable mini-studio is being developed by Tony Gibson so that teachers can familiarise themselves with the techniques. At Loughborough college John Leedham is experimenting with programmed learning transmitted to large groups of students; at Chorley a very simple system has worked well; in London the ILEA has provided a mobile unit with a video tape recorder which serves a group of colleges; at Glasgow the technique is being explored in association with team teaching; and at Bolton (technical) there are courses for serving teachers as well as for students. In the university departments of education in London and Leeds postgraduate students have the opportunity of experimenting.

At Plymouth, pioneering work by the department of electrical engineering has led, with Bernard Webster as the director, to a full television service for schools based on studios at the college. Glasgow was the first of the district systems to be operational and has served as a pattern. Plans are at various stages of development in Edinburgh, Hull, Liverpool, London, Hillingdon and Essex.

Most universities too are showing varying degrees of interest, with Leeds having the distinction of the first comprehensive system: several universities are busily exploring means of exchanging programmes so that the teaching of eminent authorities in some subject fields can be made available to many universities. The Inter-University Working Party on Television Linkages, under the chairmanship of Peter Laslett, is investigating how modern techniques of communications, including the use of recorded material, might help university institutions to pool their resources and thereby to extend the range and broaden the scope of their teaching. The Nine Universities Research Unit, directed by John Scupham (formerly BBC Controller of Educational Broadcasting) and financed by the Calouste Gulbenkian Foundation,

represents the Universities of Cambridge, East Anglia, Essex, Glasgow, Hull, Leeds, London, Strathclyde and Sussex. Its report to the working party last December said that there were a number of principal needs which could be catered for by inter-university transmissions or recordings. These included highly specialised demonstrations, seminars, addresses by distinguished lecturers and basic teaching for undergraduates.

In a very few years therefore initiatives in all parts of the education service have thrown up a wide range of possibilities, both as to the scale of feasible systems and the links between different parts of the service. The need for co-ordination and assessment is becoming clear, not least in relation to the future role of the teacher, the possible enlargement of his professional competence and a new dimension therefore in his training. The pace of innovation promises to be so rapid that serving teachers cannot afford to stand aside and leave it to newcomers to the profession to take control of the new medium. One result is likely to be a fundamental re-thinking not only of the content of education but of the learning process itself; and some of the research projects commissioned by the Department may well shed light on these abstruse topics in a highly practical situation.

Teachers who have become involved in these experiments have soon discovered that in order to prepare material for transmission they often have to take it apart to such an extent that they find themselves re-planning lessons and indeed thinking in quite new ways about the shape of the syllabus. For this reason there is a strong argument for associating the work with the curriculum development being undertaken by groups of teachers in all parts of the country in response to the stimulus of the Schools Council.

Tapes and Language Laboratories

The range of the lecturer can also be extended by the use of the tape recorder. It would presumably be possible to tape-record sets of lectures in almost any subject, for students to play back in their own time at their own speed and to take such notes as they wish without reference to book or blackboard. To the extent that they had a library of tapes to draw on their range also would be extended beyond the single classroom or lecture hall. An example of the former noted by the Brynmor Jones committee was a taped lecture on probability theory in a higher mathematics course at Cardiff, while an example of the latter was taped background information of physiological optics for second and third-year students at Birmingham. In practice however the most striking development to date has been the use of tape recorders in foreign language teaching: installed in separate booths, and wired to a console for monitoring an inter-communication, in what have become to be called language laboratories. The origin of the phrase has been claimed for Ohio University in 1924, but there was a recorded course in French conversation in this country as early as 1904. Our first full-scale installation however came in 1961 at Ealing Technical College; and the idea caught on so quickly that four years later an EFVA paper recorded some 450 separate installations, over 200 of them in schools (mostly maintained secondary schools), 124 in further education establishments, 29 in universities and 22 in teacher training establishments.

It seems unlikely that this kind of learning situation will be confined for long either to languages or to tape recorders. This will be the bread-and-butter line, for the obvious reason that we have to brush up our language teaching, particularly in its oral aspect, and the tape recorder —with its listen-respond-compare exercise—offers a quick and effective means of doing so. But even in language teaching the need is emerging for a wider range of recorded material and for accompanying visual material including the use of closed circuit television. It would be unrealistic to suppose that such a battery of aids would for long be confined to language teaching, and indeed a commercial firm has already produced instructional tapes on electronics, the internal combustion engine, chemistry, metallurgy and oil refining. With the further development of recorded visual material, such as cheaper video-tapes of broadcast television programmes and the cassette-loaded projectors for using short films in loop form, it is possible to visualise considerable libraries of audio and visual educational resources almost completely independent of the printed text book.

Whether this could create a learning situation independent also of the class teacher is still an open question. In the language laboratory it is argued that the presence of a teacher is necessary so that the knowledge gained can be transformed to an active command of the subject. As in any other learning situation the student needs to be guided in his selection and use of material, particularly in the early stages, and this will certainly be so if he is working through a course towards a specific qualification. But precisely because the individual teacher can call on a richer range of assistance, and because the individual student can work more on his own, the potential productivity of the teacher could in theory be increased.

Programmed Learning

At this point it becomes necessary to consider the development curiously known as programmed learning (as though the idea of an ordered sequence of small steps in the acquisition of knowledge were something new). It has two features: one is the development of theories about the construction of the programme; the other is in the use of a machine to present the items on the programme to the students instead of just printing the programme in a book or on a series of cards. These two developments have together given the subject an appearance of novelty, so that it has attracted a degree of interest somewhat large in relation to the handful of schools which have done anything about it.

The present era of programmed learning is usually dated from the 1954 pronouncement of Professor Skinner of Harvard that if pigeons can be taught to play the piano (which they can) when each small step in the process is rewarded with a grain of corn, then so can children be taught complex subjects by substituting for the grains of corn some other form of step-by-step encouragement. The method adopted was to tell the child immediately whether his little step was right or wrong and to make it possible for him to discover this for himself by pressing a button on the machine containing the programme. Ten years later the Ministry of Education noted in a published report that the number of local education authorities experimenting with these methods had increased to 38 from a mere 14 twelve months earlier. But the range of work was fairly limited and even today the use of programmed learning

in schools is tiny and there is no clear answer as to whether it can take over large stretches of teaching. But there is a good deal of research going on at Birmingham where the Department set up a national centre in September 1965, and at the London Institute where the ILEA and the Department jointly are supporting an attempt to assess the implications of wide scale use in schools, and some authorities are going ahead with development (for example Surrey, which has furnished four schools with teaching machines, Gloucestershire which has well-organised courses for teachers and the West Riding which has set up a complete programmed learning unit).

Some of the doubts and difficulties were described in an earlier issue of *Trends* (No. 2, article by George Leith), one being the initial cost of teaching machines and another dissatisfaction with the programmes. There is a good deal of evidence for believing that expensive and complex equipment is not in fact essential to the use of the programmed method. The other objection is likely to be more deep rooted, involving that very hazard noted earlier (in the words of Sir Eric Ashby) that he who controls the programmes in an age of growing computerisation could become 'terrifyingly powerful'. Using less horrific terms, one might say that teachers have strong ideas on what should be taught and what should be the sequence of ideas and are disinclined to let these matters be decided for them by external programmes. One answer to this has been given by M. Macdonald-Ross (*New Scientist*) who points out that 'just as there are good teachers so there are good programmes . . . The more programmes there are, the more choice there is for teachers. The bad one will go to the wall'. And the teacher is as free to comment to his pupils on the inadequacies of programmes as on the inadequacies of text books—and seek to make good the deficiencies of both.

Although programmed learning is more talked about than used, the talk has at any rate crystallised a question that is applicable to the entire range of switched-on education: namely, how far and in what ways you alter the role of the teacher when the classroom becomes a learning laboratory, using TV programmes (national, regional or district), tapes and film loops and standardised mass-produced visuals, including programmes scientifically worked out by the computer. There can be no doubt that these new instruments of learning (and others, perhaps not yet thought of, that will follow them) will transform the pedagogical situation: for education involves communication and cannot stand aside from the revolution in communications that is taking place outside. But how the situation is going to be transformed is (or ought to be) a matter for teachers. What is at stake is not only our theories and methods of teaching but also our theories and methods of learning and our theories and methods of organising schools—and above all perhaps the teaching profession itself. No machine, unaided, will teach any child anything: the programmes and the films and the tapes all have to be designed and the computers have to be instructed, and behind all this activity is a handful of ideas about how human beings learn things. The main result of electronic education may after all be that we are forced to look at those ideas again. One thing that is already becoming clear is that the status of the teacher will grow rather than diminish in the process. First because he must come to be the controller of a learning situation both freer and more complex than before, deploying both equipment and a range of subsidiary skills; and

secondly because in the process of putting the new aids and aides in their place he will be involved increasingly in the modernisation of the syllabus and its presentation.

Nuffield and NCET

One context in which these issues are being raised is the Nuffield research and development project, supported by the Department and the Schools Council, under the general title *Resources for Learning*. The Nuffield project team will study ways of organising work in schools so as to make the best use of teachers' skills, of new developments in method, and of the potential of modern equipment; it will also pay particular attention to ways in which the individual pupil can follow patterns of activity in which doing fully complements seeing and hearing. Account will be taken of relevant research and experiments already in progress, and an attempt will be made to bring together a number of new ideas into a co-ordinated programme. The questions to be investigated will include: at which points, in which subjects, and for what purposes are programmed learning, educational television and other new media likely to contribute most effectively to the learning process? How can the school timetable be so arranged as to realise the full potentialities of these resources? What would appear to be the best ways of deploying staff? What are the architectural, social and economic implications of any suggested changes? And how can we ensure that such changes will lead to a positive improvement in the learning opportunities for the individual pupil? One possible outcome may be a greater flexibility in the grouping of pupils: instead of fixed units of 30 or 40 children to one teacher throughout the day, one might expect to see groups ranging between, say, 10 and 100 for various types of activity. Particulary important will be the attempt to match suggested developments in organisation and methods with existing conditions to allow for gradual as well as revolutionary change.

A year after the launching of the Nuffield project came the announcement of the new National Council for Educational Technology (under the chairmanship of Dr Brynmor Jones) to advise bodies concerned with education and with training in industry and in the services on audio-visual aids and media and on the most appropriate and economical ways of using them, and to encourage research and development projects in educational technology. The Council will give guidance at all levels of education from primary schools to universities. It is established jointly by the Department for Education and Science and the Scottish Education Department, and the Ministers of Defence, Labour and Technology are associated with the proposal. The Council has the following terms of reference:

(1) To advise bodies, including Government Departments, concerned with education and with training in industry and in the services, on audio-visual aids and media and on the most appropriate and economical ways of using them.
(2) To survey work in educational technology and, in consultation with the bodies involved, to seek ways of improving co-ordination.
(3) To encourage research and development projects in educational technology.
(4) To collect and disseminate information about experience with existing audio-visual and media and about new developments and research projects.

(5) To consider the arrangements needed for, and to promote the training of staff who are concerned with audio-visual media and equipment and with the creation and use of audio-visual material.
(6) In the light of progress with the Council's work and other related developments, to advise the Secretaries of State whether a national centre for educational technology is required and, if so, what its functions and structure should be.

The Department and the Scottish Education Department plan to earmark funds which can be used to support some of the research and development projects recommended by the Council. The other Departments associated with its work also hope to be able to help with some projects which interest them, either by contributing to the cost or by carrying out research or development themselves.

The work of Nuffield, of the Schools Council, and of the new National Council will all add to the stock of knowledge and experience becoming available to the teaching profession; but only to the extent that it is drawn upon by teachers themselves in the elucidation of their problems and the furtherance of their aims will it make a real contribution to educational advance. There is no reason to suppose that the present range of aids and their application will be the end of the matter: we are probably barely at the beginning of what an alliance of electronics manufacture and educational publishing can accomplish. But enough has already happened to demonstrate that the managerial revolution in pedagogy is on the way.

The expansion of higher education in the last seven years has more than doubled the number of students eligible for awards under our student support system.

Student Support

Recent years have seen both a massive expansion of higher education and the adoption of the principle that virtually all British residents admitted to an undergraduate or similar course in higher education are automatically entitled to awards. Together these have transformed the picture of student support from what it was even a few years ago. Though still based on principles adopted before the acceptance of the proposals of the Robbins Report for the expansion of higher education, student support is now a major feature of educational expenditure and corresponds in order of magnitude to such social services as Family Allowances and War Pensions.

The number of students, (including post-graduates) holding awards from public funds at institutions of higher education have more than doubled in the last seven years. During 1965/6 there were 307,261 such awards current in Great Britain compared with 129,301 in 1958/9. In the same period the total cost of these awards has much more than trebled from £26.1m. in 1958/9 to £88.0m. in 1965/6.

The arrangements for these awards vary according to whether the awards are for study for a first degree or comparable course or for post-graduate work.

First Degree and Lower Awards

Underlying all arrangements for undergraduate and equivalent awards is the principle, enunciated by the Anderson Committee in 1960,[1] that every student accepted for the first time for a course at first degree or equivalent level should receive, as of right, an award from public funds; provided that he is normally resident in Great Britain and has two GCE 'A' Level passes or the equivalent. These awards range in value from full fees and maintenance down to a minimum of £50 a year depending on parental means. The fees are moreover only a fraction of the actual cost of providing courses, the greater part of which is met direct from public funds.

In Scotland these 'duty' awards are made centrally by the Scottish Education Department whereas in England and Wales they are made by the local education authorities. Comparable arrangements are provided for college of education students. In addition there are 'discretionary' awards made by the local education authorities and by the Scottish Educational Department for the support of other students in higher education—mainly those pursuing professional or vocational courses. The discretion of the local authorities extends both to the choice of individual students and to the number of awards so made.

[1] Report of the Committee-Grants to Students Cmnd. 1051.

Page 46 line 15 should read

"In the same period the total cost of these awards has much more than trebled from £26.1m. in 1958/59 to *£100.8m.* in 1965/6."

Page 47 main text line 7 should read

"During the period covered numbers have increased by 138 per cent and the cost by *220* per cent."

Page 49 in Table 5 *Cost of Awards* (£m) *Undergraduates* should read

29.1, 34.7, 56.5, 75.2, 93.3

and *Total* (Cost of Awards) should read

31.2, 37.6, 60.6, 81.7, 100.8

There are certain small differences in the divisions, made in Scotland, and in England and Wales, between duty and discretionary awards. SED for instance made awards for higher national diploma courses as if they were duty awards.

The numbers and cost of all awards at first degree and lower levels in recent years are shown in Table 1.

Table 1 Current Awards: first degree and lower

	1958/9	1960/1	1962/3	1964/5	1965/6*
Number of Awards					
England and Wales	109,687	125,715	172,304	225,204	262,085
Scotland	12,970†	14,146†	20,746†	26,088†	29,586†
Total	122,657	139,861	193,050	251,292	291,671
Cost of Awards (£m)‡					
England and Wales	26.7§	32.1§	50.4	67.7	83.8
Scotland	2.4	2.6	6.1	7.5	9.5
Total	29.1	34.7	56.5	75.2	93.3

*Figures for England and Wales are provisional.

†Excluding education authority bursaries for part-time courses.

‡These figures include the costs of board and lodging provided without charge in colleges of Education in England and Wales; they exclude administration costs.

§Estimated.

During the period covered numbers have increased by 138 per cent and the cost by 225 per cent. The breakdown of these figures between the main types of institution are as follows:

Table 2 Current awards (first degree and lower) Gt. Britain

	1958/9	1960/1	1962/3	1964/5	1965/6
Number of Awards					
Universities	64,543	70,537	86,259	112,871	127,284
Colleges of Education*	29,705	34,643	49,211	65,224	77,882
Other Further Education Establishments	28,409	34,681	57,580	73,197	86,505
Total	122,657	139,861	193,050	251,292	291,671
Cost of awards (£m):					
Universities	16.6	18.6	27.8	36.2	44.1
Colleges of Education	7.7	9.5	16.2	22·2	27.0
Other Further Education Establishments	4.8	6.6	12.5	16·8	22.2
Total	29.1	34.7	56.5	75.2	93.3

*Including awards made to graduates (there were 540 such awards in 1964/5 and 552 in 1965/6

In 1964/5 over two-thirds of the 225,204 awards current in England and Wales were duty awards. Not included in Tables 1 and 2 are those undergraduate awards by central government departments other than education departments. In 1964/5 there were 2,100 such awards costing £1m. of which 1,600 were to students seconded on full salary. The figures for 1965/6 were 2,358 of which 1,756 were to students seconded on full salary.

Postgraduate Awards

The largest direct role in postgraduate awards is played by central

government agencies. The main ones concerned are the Department of Education and Science, the Scottish Education Department, the Ministry of Agriculture and four Research Councils (Science, Medical, Natural Environment and Social Science). The Department of Education and Science also finances the special bursary schemes of the College of Aeronautics, Cranfield, and the London and Manchester Business Schools. Other government departments also grant some postgraduate awards.

In most schemes the number of awards is limited as are the fields of study in which the awards are made. The research councils are responsible for postgraduate studentships in their own field. (Their names indicate these fields but the Science Research Council has particular responsibilities in the support of postgraduate students in the fields of science and technology which are not within the specific responsibilities of the other research councils). The Education Departments are responsible for postgraduate studentships in the humanities and postgraduate awards in University Departments of Education and in colleges of education in Scotland.

The number of postgraduate awards has more than doubled in the last seven years. In 1958/9 there were 6,254 awards by central government agencies current, the figure for 1965/6 is 14,020. During the same period the cost of these awards has increased 3½ times from £2.01 m. in 1958/9 to £7.01m. in 1965/6.

Table 3 shows the distribution by number and cost of the postgraduate awards made by the various agencies.

Table 3 Current Postgraduate Awards: Central Government Agencies

	1958/9	1960/1	1962/3	1964/5	1965/6
Number of Awards:					
Department of Education and Science	3,542	3,921	4,056	5,043	5,400
Scottish Education Department*	670	777	1,115	1,366	1,481
Science Research Council†	1,908	2,844	3,611	5,065	5,464
Other Research Councils	134	262	399	575	1,129
Other Government Departments	n.a.	n.a.	n.a.	462	546
Total	6,254	7,804	9,181	12,511	14,020
Cost of Awards (£m):					
Department of Education and Science	1.04	1.20	1.51	2·13	2.57
Scottish Education Department†	0.12	0·15	0.36	0.41	0.52
Science Research Council†	0.74	1.17	1.84	2.78	3·27
Other Research Councils	0.11	0.15	0.21	0.39	0.65
Other Government Departments	n.a.	n.a.	n.a.	0·39	n.a.
Total‡	2.01	2.67	3.92	6.10	7.01

*Until 1962 most of these awards were made by Scottish education authorities. The figures include a small number of discretionary awards.

†Prior to the establishment of SRC in April 1965 these awards were made by the Department of Scientific and Industrial Research.

‡Excluding 'other Government Depts.', apart from the year 1964/5.

In addition to these awards by central agencies there are the postgraduate awards by universities from recurrent Exchequer grant and from endowments. No precise figures are available but the amount is at least £½m. annually. Charitable foundations also make awards for the support of postgraduate students.

Local education authorities may also, at their discretion, make postgraduate awards. They are not expected to support students who are within the scope of the main central government schemes. Their support is mainly for students taking professional or vocational courses. Table 4 shows the extent of these discretionary postgraduate awards. The corresponding awards by the Scottish Education Department are included in the figures given in table 2 (q.v.).

Table 4 Current Postgraduate Awards: Local Education Authorities in England and Wales

	1958/9	1960/1	1962/3	1964/5	1965/6
Number	466	646	620	1,339	1,578
Cost (£ 000)	125	184	186.5	414	539.5

Tables 1-4 are summarised in Table 5 to show the whole position. The increase in the number of award-holders between 1958/9 and 1962/3 is due to the introduction of the Anderson system and to pre-Robbins expansion of higher education. The further increases in numbers shown in the last two columns are attributable directly to the expansion following the adoption of the Robbins target.

Table 5 Total Number and Cost of Student Awards from Public Funds

Number of Awards	1958/9	1960/1	1962/3	1964/5	1965/6
Undergraduates	122,657	139,861	193,050	251,292	291,671
Postgraduates	6,178	7,625	8,965	12,034	14,012
LEAs.	466	646	620	1,339	1,578
Total	129,301	148,132	202,635	264,665	307,261
Cost of Awards (£m)					
Undergraduates	24.0	28.7	48.0	64.3	80.5
Postgraduates	2.0	2.7	3.9	6.1	7.0
LEAs.	0.1	0.2	0.2	0.4	0.5
Total	26.1	31.6	52.1	70.8	88.0

The tendency for an increasing proportion of young people to enter courses in higher education and to continue beyond gaining a first degree is brought out in the comparison of the numbers given in Table 5 with demographic statistics. During the period covered the numbers of award holders has risen more than 50 per cent faster than the age-group.

Results Achieved by Award Holders

Some appreciation of the success of students, particularly those who receive undergraduate awards, may be gained from the *Statistics of Education—Part Two*, 1965. Here an analysis is made of the results achieved by the 45,718 students in higher education as a whole holding full value awards from local authorities in England and Wales in the academic year 1964/5. These are summarised in Tables 6 and 7.

Of the whole number 76 per cent achieved success in their studies. Women students did slightly better than men, since 79 per cent were successful compared with 74 per cent of the men. Fourteen per cent left prematurely, due to intermediate academic failure or other reasons —some of these no doubt went into other courses of study; only 6 per cent failed in the final examination.

Taking university students alone the success rate was rather higher —82 per cent; that for men was 80 per cent and for women 86 per cent. In the further education sector the overall proportion of successes was 69 per cent (66 per cent for men and 72 per cent for women).

Table 6 Results achieved by Students holding Full Value Awards, in England and Wales.

Academic Year 1964/65	Successes	Premature Terminations		Final Exam. Failure	Unknown
		Exam. Failure	Other Reasons		
University Institutions:					
Men	13,983	1,487	873	688	391
Women	6,153	270	375	179	155
FE Establishments:					
Men	8,903	1,212	1,199	1,351	729
Women	5,629	313	809	601	418
Total	34,668	3,282	3,256	2,819	1,693

Of the 20,136 successful university candidates 5 per cent achieved 1st class honours degrees or 1st class diploma in technology. Fifty-three per cent obtained second class honours and 13 per cent other honours degrees or passes in the diploma in technology. There were no significant differences between the performance of men and women candidates. It is not possible to make similar valid comparisons within further education establishments due to the far larger numbers taking comparable and other advanced courses, particulary those for higher national diplomas.

Table 7 Successful Candidates

	Academic Year 1964/5			
	Universities & institutions of university status		Further education establishments	
	Men	Women	Men	Women
1st class honours degree/Dip. Tech.	808	181	50	2
2nd class honours, degree/Dip. Tech.	7,186	3,511	426	82
Other honours degrees and Dip. Tech. passes	1,945	662	237	45
Pass or ordinary degree	3,247	1,398	404	113
Comparable courses*	—	—	765	408
Other courses	558	251	6,788	4,826
Postgraduate courses	239	150	233	153
Total	13,983	6,153	8,903	5,629

*These are courses at further education establishments which have been designated under the University and Other Awards Regulations, 1965, as comparable to first degree courses.

In Response To . . .

Religious Education

Mr K. Skinner, deputy head of Queen Elizabeth's School, Crediton and former housemaster and head of divinity at Malory School, Bromley, writes:

In her article, 'Religious Education Today' (*Trends* No. 4.), Dorothy Clark said: 'The recent development of examinations for the CSE . . . has led in some examining boards to a broadening of the syllabus in religious knowledge to include such topics as local church history, religion and life, and archaeology . . .'

Some time ago I served on a committee called together by the Institute of Christian Education to examine the ideas and beliefs of sixth formers. We were able to analyse the replies of some 2,300 sixth-formers from 100 different schools and the results have been published.* The immediate stimulus for me was the insistence by sixth formers that divinity teaching at sub-sixth form level would gain from the application of enlightened sixth form methods. In any case a large proportion of the school population leave before the sixth form stage.

In order to revise my school syllabus and to undertake experimental work for schemes of revision I endeavoured to list all the major headings which I would like to cover in the two years before the end of the fifth form, bearing in mind that most of the future students in schools would have most, if not all, of the fifth form year. The result was in some ways a reasonable syllabus for a degree in theology, sociology and history, so I began again. Having experimented with this course and having received considerable help from a non-specialist (in terms of qualifications) teacher of considerable experience and a young specialist colleague starting his teaching career, the school put it forward as a Mode 3 CSE syllabus. As a result of the conviction of the head of department that what was interesting to all ranges of ability at a comprehensive school would be interesting in the same age group at a grammar school, my present school is now submitting the syllabus as Mode 3 CSE and Mode 3 GCE (using differing examination techniques). In both cases, the boards have been very helpful, and the 'O' level board have granted, for the initial year, the right to have Mode 3 in one paper —i.e. 50 per cent of the final marks to be awarded by the school.

It may be possible in other subjects for heads of departments in former grammar and secondary modern schools to avoid the GCE/CSE dichotomy by discussing the provision of a body of subject matter (taking into account the local situation) and then putting forward their own GCE and CSE syllabuses. In our case, the proposal for GCE Mode 3 reached the board a week before the School Council's report asking boards to encourage schools to put forward experimental school syllabuses.

Reduced to outline, the syllabus is:

A Study of the encounter of Christ with those He met, as recorded in the Gospels. This includes the outline of His life and work, a careful study of every occasion of recorded encounter, and an attempt to discover the main principles of His teaching as reflected in formal teaching and teaching by encounter.

A Study of the encounter of Christ with men and women through the centuries. This work begins with the apostle Paul and is designed to show the differing ways Christ has spoken in every age.

A study of the teenager in relation to his environment.

(a) The Home. (Conflict. Independence. Duties.)
(b) The Peer-group. (Hazards/benefits of friendship. Boy/girl friendships. Awareness of sex not as isolated issue but in context of development. Engagement. Marriage and the family Where to get help if needed. Standards.)
(c) The School. (Community. Worship

* *Sixth Form Religion* by Edwin Cox. SCM Press, 1967.

The editors of* Trends *welcome statements by readers in response to articles they have published.

in school? Work at school. Quality. Mass production. Use of money.)

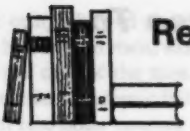
(d) The Neighbourhood. (Class/colour /standards / crime / punishment / correction/reform? Service to community. Problems of the elderly.)

The Teenager and the wider world. Consideration of the topics mentioned above as wider issues. The beliefs which form the basis of differing ways of life. 'Crucial' issues—suffering, purpose, death, credo?

Application of the studies of Christ and of the individual in relation to the world of 1967.

It is an essential preliminary to such studies that disagreement with the Christian (or in many cases 'a Christian') interpretation be given credit, provided that such disagreement be supported with evidence. Once such a syllabus has been determined there are very many ways in which it can be taught, and my own idea was that a book or folder should be produced, written by the student, in which classwork, homework, notes of visits or lectures and necessary duplicated material be included. The student should also undertake a study in more depth of some major subject which has arisen during the first year of the course or for which approval is sought. There is now much experience on grading such projects and I have found that provided I can give continuous guidance but keep out of the way as much as possible, the results are far beyond anything I could produce and have included sculpture, photography, survey work, portfolios of drawing or paintings as well as much that might normally be expected.

Much of the work in this two-year course is unexaminable, and I have been in contact with so many schools and teachers that I quickly realised that much of what I have outlined is already in operation. But in reading the now familiar comment that 'religious educators had not given sufficient thought to moral education' I would straightway want to ask a college—what experimental work is being done? What steps are being taken to make sure that students will be able to teach 'religious sociology' or 'Christian ethics' or even 'R.E.'? 'Divinity' covers a multitude of (agreed) syllabuses!



Reviews

Modern Ideas on Physical Education
by M. W. Randall
G. Bell and Sons 12s. 6d.

This is the third edition of a book which was first published in 1952 and revised in 1960. It is sad indeed that this edition is posthumous for the author is one of the few people in Britain who have written a book on the broader principles of physical education since the war. Although the latest revisions are not very extensive, the book continues to be a very useful focus of discussion for teachers of physical education or for student seminars. As the author suggests in his preface, it is probably best read in conjunction with *Objectives in Physical Education* which he wrote with W. K. Waine and M. J. Hickling, and which expands the wide-ranging topics which are concisely expressed in *Modern Ideas.*

The main difference in this edition are: some modifications in the chapter on gymnastics in physical education, in which the analysis is linked with Munrow's seminal work (*Pure and Applied Gymnastics*); an addition to the section on strengthening work, and on joint action and the stretch reflex; and an extension of Appendix A to include suggestions on the modern educational gymnastics lesson, with a short summary of Laban's movement qualities, and outlines for lesson patterns and themes.

This is a courageous book. It examines objectively the place of Laban's influence on physical education and concludes, as probably do many men teachers, that basic movement does not provide a complete key to the acquisition of the more advanced skills in games and sport. Suggesting a synthesis between Munrow's theory of personal skills and Laban's principles, the author supports a more open-ended approach to gymnastic skills with the reservation that each performer must

extend himself so that all-round physical development is likely to accompany personal skill.

The writer is concerned with ends rather than means; nevertheless, he makes clear suggestions for the practical implementation of his proposals. There is a danger, however, that a discussion of Laban's principles may become such an obsessional Aunt Sally that some of the more specific pressures which affect a curriculum may be overlooked. Thus Mr Randall criticises the insensitive or bigoted head who unduly swings the games to his own preferences, but he fails to examine the growth of more pervasive pressures—some of which may be very beneficial and others less so—which influence the emphasis on various activities. These may include the skill and enthusiasm of LEA organisers and advisers, or the effect of the national championships in athletics, swimming and other games, with their ripple effect at area or local level. Similarly, in a desire to offer the cakes, the quality and thickness of the bread and butter are ignored. Fives is recommended as a school game, but the place of cross-country, which a high proportion of boys enjoy or suffer for an appreciable part of the year, is left unexamined.

It is disappointing that the footnotes refer to the first and not the second edition, published in 1963, of Munrow's book, and that the long bibliography does not include references to the more recent works of P.C. McIntosh, Joan Russell and J. M. Tanner, for example. But these are details in a lively, challenging and provocative work. One ends it with all the more regret that Martin Randall died in harness, and that he is no longer with us to apply his probing mind to the new developments in physical education and recreation.

K.R.B.

Understanding Schools
by David Ayerst
Penguin Books, 5s.

Mr Ayerst's name may be scarcely known to the public, but by his contribution to the Crowther and the Newsom Reports he has almost certainly exercised an important influence on the future development of English education. He is a gifted writer who contrived to make the gargantuan Crowther and the substantial Newsom readable works. His approach to education is not that of a careerist; he is academic in the old sense of the word, that is to say without self-righteousness, moral conceit or manifest prejudice. In these respects he differs from some 'academics' who have given their attention to education. All this provides good reason for obtaining this book in spite of its cover, which is of such stark ugliness that one supposes it to have been chosen for its effect as contrast to the near-nude females displayed on neighbouring paper-backs.

The shape and content of the book derives from a shrewd point made in the introduction—that for 12-13 years most of us need to know something about schools because our children are attending them. There are many parents who make a job of these years, and others who make a hash of them. This book which concentrates on essential information and is to be relied on for its accuracy and good judgment could conceivably reduce the numbers in the second category.

There is another set of people to whom this book is addressed—those leaving schools and universities and wondering whether to teach. They too should be helped by its clear and sympathetic pictures of the schools of today, of those who work in them, both teachers and pupils, of what is taught and how the work is organised. This is a book about human beings and not about institutions or research material. Mr Ayerst has spent a long time in schools and has thought deeply about them.

D.H.

Scottish Educational Studies Vol.1 No. 1
The University of Glasgow

There must be a warm welcome for a new educational journal from across the border —especially one over which five university departments of education are to be associated and in which an article on Stirling's plans for the preparation of graduate teachers appears.

The captain of these Combined Academicals occupies the full-back position in this first work-out. We shall expect from

him later some brilliant excursions into the attack—in the manner of Ken Scotland. His team will clearly be capable of strong forward play on traditional lines, but some of its younger members put in interesting performances. Mr MacKenzie as a wing forward, packing on the left, tackles the evolution of Labour Party policy on secondary reorganisation with persistence. On the philosophy of education Dr Best tries to make rings round Professor Peters in a brilliant solo effort which does not however seem to produce any positive addition to the score.

There is a summary of current research in Scotland and abstracts of post-graduate education theses.

D.H.

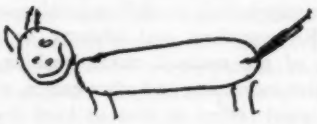
Georg Kerschensteiner
by Diane Simons

Pestalozzi
by M. R. Heafford

Aristotle
by Cyril Winn and Maurice Jacks
Methuen Education Paperbacks 12s. 6d.

It was a good idea to turn up some of the writings of educational thinkers of the past

INSIDE THE PRIMARY SCHOOL



by John Blackie 5s.

Today parents want to know about their children's education. To help meet this need, the Department of Education and Science asked John Blackie, formerly Chief Inspector of primary schools, to tell parents - out of his own experience - how these schools are changing and why.

Obtainable from HMSO bookshops, or through your bookseller.

and re-examine them for relevance to our problems in Britain today. The publishers are to be congratulated too on giving the paperback version an attractive appearance. (There is also a bound edition at twice the price.) Unfortunately the experiment, so far as the first three volumes is concerned, has not been uniformly successful.

The best of this trio is Diane Simons' study of Kerschensteiner, which is just as well since, as well as being the least well known of the three to English readers, he has currently the most to say to them. As director of education in Munich at the beginning of the century Kerschensteiner pioneered the developments in vocational education which became a standard pattern in Germany and contributed to her industrial advance following World War II. Yet Kerschensteiner did not start out to find an education that would lead to national economic prosperity: on the contrary he started at the other end with the needs of the individual—'essentially a social being, a member of a community, whose education should be such that it would aim at equipping him to play his part as a member of that society'. If society gained in the process so much the better.

Kerschensteiner saw character training in terms of vocational training and both as rooted in the interests of the child. So we find a conclusion that would sit well at the head of a Schools Council pamphlet on raising the school leaving age: 'the schools should heed the true interests of the average fourteen-year-old, which were purely egocentric ones. The average adolescent worker was not interested in academics but in *himself* and in his newly formed way of life . . .' And so to 'the leitmotif behind Kerschensteiner's organisation of a new type of school which would pulsate with activity and work, and where the objects of that work and activity corresponded so much to the interest of the pupil that he would not regard them as a duty to be performed, but as a pleasurable occupation.'

In the event plenty of British primary schools took that path and, if the drafters of the Plowden Report have their way, so will many more. In technical education, however, where Kerschensteiner had his fullest impact, we are a generation or two behind. Diane Simons does not argue that the German system of technical education is perfect (she rightly draws attention to some rigidity and excess demand for paper qualifications), but she points with justification to the early establishment of compulsory part-time education up to eighteen, which we still do not have even after the Industrial Training Act. For those who want to learn from German experience through the life and writings of one man this book is an admirable introduction to both.

The attempt to reassess Pestalozzi is only half successful. Michael Heafford makes him a dull fellow, which one cannot believe he was—setting out at the age of 52 'to convince the world at large that his ideas were not the fantasies of an eccentric' and stirring up such contrasted reactions in the attempt. His assistant Niederer has perhaps summarised the ideas best:

> The subjects taught had to be adapted to the nature of the child, to the range of activity of which he was capable, to the stage of his development and to his individual needs. The basic elements of instruction he wished to educe from the physical, mental, moral, and religious nature of the child, from its elemental appearances. The course of instruction had to be brought into complete harmony with the stages of development of human, nature.

Mr Heafford, although he has missed the opportunity to tell us what this might mean for twentieth-century educators, has at any rate provided a useful reminder of how child-centred education emerged in Switzerland from the confusions following the French revolution.

Aristotelian thought, on the other hand, seems in the third of these volumes oddly remote from the tasks of education today. So much so that Cyril Winn finds himself driven to speculate what Aristotle *might have said* about our problems of admission to universities and technical colleges if he had followed Plato's lead. So we are given Plato's views instead of Aristotle's, followed by a paragraph that works in UCCA and the demand for courses in divinity, Greek, and music. If this is what the publisher's blurb means by 'juxtaposing' Aristotle's views with modern opinions readers may feel that this is the least successful of the three volumes.

In fairness it should be stated that the work was begun by the late Maurice Jacks, who discerningly put together some of Aristotle's views on education and assembled a framework, and that Cyril Winn then arranged around it some random pronouncements from British educators today. In the event it is difficult (apart from the section on music, to which Mr Winn brings an authoritative and sympathetic judgment) to accept the view of the editor of the series, Professor C. H. Dobinson that this is 'a work both of scholarship and of challenge to new thought'.

If the publishers continue the series (and it is very much to be hoped that they will) they should encourage Professor Dobinson to take the Kerchensteiner and not the Aristotle as the model.

John Locke
by M. V. C. Jeffreys

Since the above notice was written a fourth volume in this 'Library of educational thought' has come to hand. It is a relief to find that it is closer to the Kerschensteiner model in its genuine relevance to contemporary problems, with the added advantage of being uncommonly well-written. The views on education of this 'amateur, slightly garrulous . . . elderly bachelor' come across with a surprising freshness. It used to be said that it took thirty years for a new idea to permeate English education. Re-reading Locke in this very convenient summary one gets the impression that it sometimes takes three hundred years. In English composition children should be 'taught to express their own plain, easy sense'. Grammar has a place but 'there is a great deal more stir made with it than there needs'. French should be taught orally and as soon as the child can speak English "tis time for him to learn some other language', the teacher must appeal to curiosity and stimulate the desire to learn, live first-hand experience should be present, not second-hand, predigested material, and—finally—'skill not only in languages and learned sciences, but in painting, turning, gardening, tempering and working in iron and all other useful arts is worth the having'. In such skilfully selected examples Professor Jeffreys reveals John Locke to us as a man of our own time and (necessarily therefore) in advance of his own—in the sub-title to the book a 'prophet of common sense'. N.C.

Educational Documents—England and Wales 1816-1963
by Stuart Maclure
Methuen Education Paperbacks, 25s.

The publication of Select Documents makes an aspect of history academically respectable (Stubbs' *Charters* in the nineteenth century, Bland and Tawney's *Economic History, Select Documents* in the early twentieth). A. F. Leach and now Mr Maclure have thus done a service to the History of Education. To whom, apart from the scholar, should the study of this subject be important—the educational administrator, the teacher in training? We do not seem very sure about the answer. This volume of documents is 'an introduction for students of education and others'—such is the non-committal verdict of the publisher's blurb. Mr Maclure in his introduction refrains from speculating on the 'usefulness' of history or its place in the education of men and women who enter the teaching profession. Nevertheless we would suggest that this volume ought to be in the library of every institution concerned in any way with the training of teachers. To possess a sense of history means adding a dimension to one's common sense which is the quality most required in both teachers and administrators. Statesmen with this historical sense—Churchill, de Gaulle, Nehru—seem to do better than those without it. The doubtful issue is perhaps whether the official documents alone can do the trick. A second volume of extracts from Dickens, Kipling, Wells, Winifred Holtby to mention only four creative writers whose work has illuminated Mr Maclure's period of educational history would also deserve a place in the college library.

TRENDS IN EDUCATION

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Towards World History

This pamphlet considers one of the principal challenges to the traditional history syllabus, namely the movement towards the teaching of world history. It deals with the handling of this work with younger as well as with older pupils and discusses the case for reconsidering the history syllabus as a whole in the light of twentieth century developments in the direction of 'One World'.